# GRUMMAN plane news

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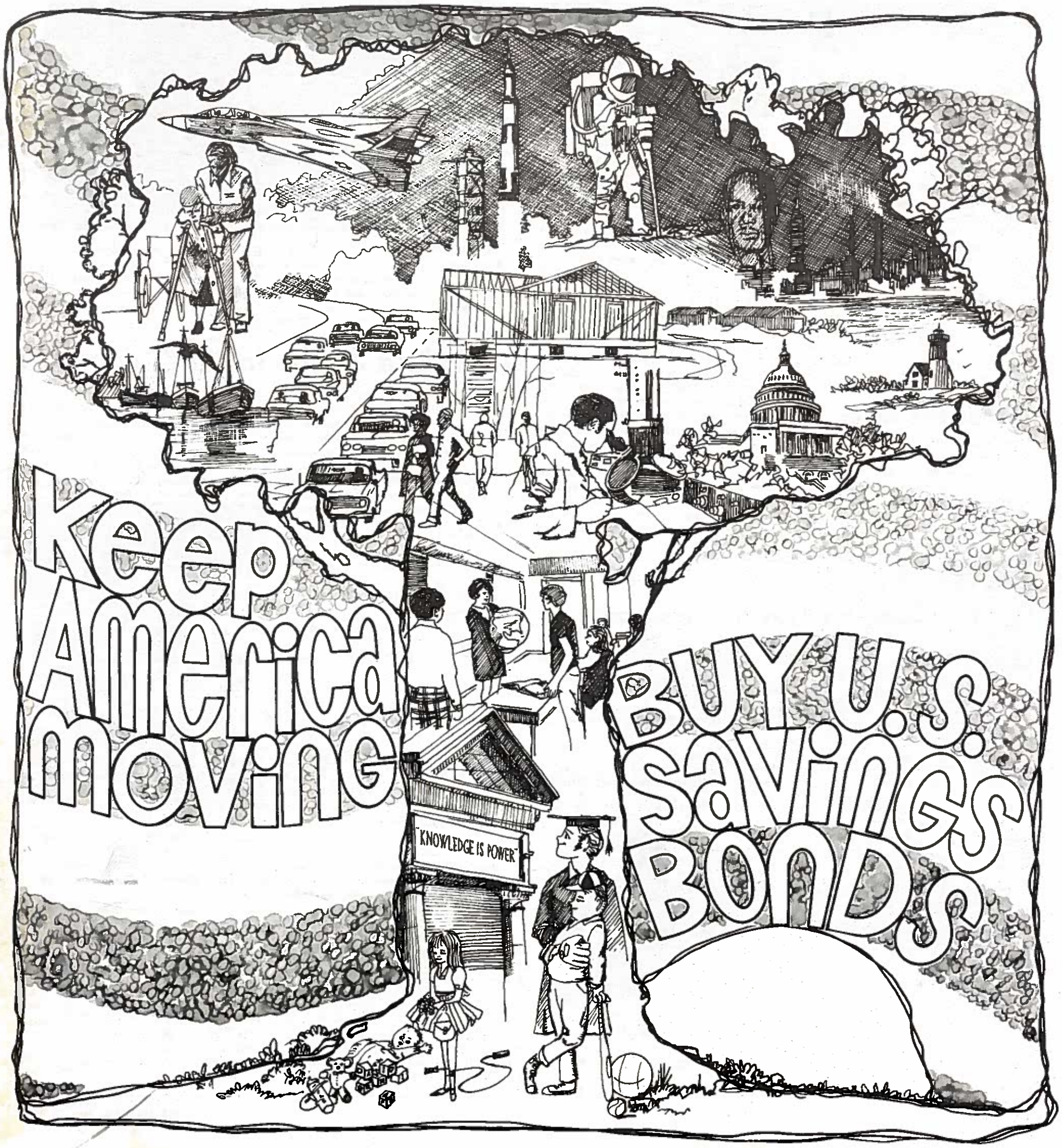


# Tom Kelly first to receive new Cornell alumni award

Vice President Tom Kelly, deputy director of the Space Shuttle Program, has been named the first recipient of a new award for distinguished alumni of Cornell University College of Engineering.

Announcement of Kelly's award, "in recognition of achievement lending distinction to the college," was made at the spring meeting of the Engineering College Council on May 5 at Ithaca, N. Y. The Council is an advisory group to the College of Engineering.

### Honored for LM work

Kelly, who received the degree of Bachelor of mechanical engineering from Cornell in 1951, was given the honor for his "unique contribution to the conception, design, and development of the Lunar Module," according to Andrew Schulz Jr., dean of the College of Engineering. Kelly became known as "Mr. LM" during his work with the National Aeronautics and Space Administration on the Grumman/NASA Lunar Module. He is now working on the Company's Space Shuttle Program.

The Cornell Engineering Award was established in late 1971. Kelly's is the first award of a number the college expects to grant to distinguished alumni in recognition of outstanding professional achievement and leadership. The award is represented by a silver medal.

### Former Grumman scholar

Kelly was involved in the Apollo Lunar Module Program from the time of its inception in 1960. He participated in feasibility studies of the manned spacecraft and served as project engineer for the Company's Lunar Module development effort. Subsequently, he was Preliminary Design engineer for the Lunar Module, and after the contract was awarded to Grumman, he served as project manager, Engineering manager, Vehicle Test manager, and assistant Program director with responsibility for all spacecraft engineering work on LM.

Kelly held a Grumman Engineering Scholarship at Cornell. He earned a Master's degree in mechanical engineering at Columbia University in 1956 and took additional graduate work at Ohio State University and the Polytechnic Institute of Brooklyn. He was awarded a Sloan Fellowship to the Massachusetts Institute of Technology, 1969-70.

Kelly is a member of the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, and several honorary societies. In 1971 he was elected a Fellow of the American Astronautical Society.

Kelly is 42 years old and lives with his wife and six children in Huntington.

## About the cover

The tree of life — sketched here by Pete Schumacher of Presentations Services—begins with the blocks and toys of early childhood, grows through years of education, and then branches out into maturity as the talents and skills of past experience lead to new and grander activities and institutions . . . all assisted by sale of U.S. Savings Bonds, all to Keep America Moving.

## List counselors for Travelers Insurance

Here's a reminder: If you're participating in the Grumman Financial Services Plan and you have insurance policies with Travelers on your own life, or your auto, or your home, there may be times when you have questions about these policies. Travelers Insurance Companies have a group of permanent counselors on duty at Grumman for your convenience.

Here is a list of the counselors, their plant schedules, and telephone extensions.

| Plants | Counselor | Outside Line | Extension | Schedule |
|---|---|---|---|---|
| 1, 4 | Allan King | 433-1092 | 86289 ( 1) | Mon., Tues., Thurs., Fri. |
| 2 | Bob Nickola | 433-7424 | 86933 ( 2) | Mon., Tues., Wed., Fri. |
| 3, 10, 17, 18, 24 | Ken Stiehler | 822-4684 | 84266 ( 3) | Mon., Tues., Thurs., Fri. |
| 5, 13, 23, 25, 39 | Paul Vandenbergh | 433-1963 | 84963 ( 5) | Mon., Tues., Wed., Fri. |
| | | 86367 (28) | | Thurs. |
| 6, 7, 8, 32 | Tom Edwards | 727-2443 | 641 ( 6) | Tues., Thurs. |
| 11, 12, 15, 16, 20 21, 28, 37 | Tom Edwards | 433-2246 | 86298 (15) | Mon., Wed., Fri. |
| 27 | Bob Nickola | 643-5220 | (27) | Thurs. |
| 30, 36, 40 | Warren Umbach | 433-2948 | 86865 (30) | Mon., Tues., Wed., Fri. |
| | | 248-5817 | 86311 (36) | Thurs. |
| 33 | Allan King | 364-1240 | 86322 (33) | Wed. |
| 34 | Dick Baffuto | 364-1360 | 86754 (34) | Mon., Tues., Thurs. |
| 14, 26, 31, 35 | Dick Baffuto | 433-3115 | 86739 (35) | Wed., Fri. |

**Commendation from Washington.** Grumman Aerospace President Bill Zarkowsky last week presented a certificate and letter of commendation to Rick Baker (L) of Grumman Contracts for 10 months' work on a project to improve the Federal procurement process. His group included representatives from both government and industry. Rolf Larson (R) is Grumman Contracts director. (Photo by Bob Settles)

## Salute Baker for D.C. work

E. L. (Rick) Baker, assistant director of Contracts, is back from an on-loan assignment of 10 months to the Commission on Government Procurement in Washington. Grumman Aerospace President Bill Zarkowsky presented him last week with a certificate in recognition of his contributions to the survey. A personal letter from Donald E. Sowle, director of Commission Studies, said, "On behalf of the Commission and its staff, I wish to thank you for your participation as a member of Study Group 7, Cost and Pricing Information, of the Commission on Government Procurement . . . Your professional assistance in the study of cost and pricing information contributed immeasureably to the success of the Study Group report . . . The certificate expresses our sincere appreciation for your counsel and help in fulfilling the Commission's goals for improving the Federal procurement process." Baker's group's special emphasis was on renegotiation.

### Come fly with me . . .

There are three young Scouts from Bay Shore who are probably looking around for more good deeds to do these days . . . and Ellie McCullough of Business Development is holding on to her pocketbook a little tighter, too. While shopping in Bay Shore recently, Ellie lost her pocketbook to a purse snatcher. That was bad enough. But in the pocketbook were items more valuable than the $20 she lost—driving and pilot's licenses, among other things.

So when the youngsters returned the pocketbook—the thief removed the cash—with the identification cards intact, Ellie rewarded the kids by taking them for a plane ride over Long Island. It was the first ever for them, and they enjoyed it. For Ellie, who's been flying for over 20 years and has competed in many of the women's air derbies, it was a fun way of rewarding some youngsters for their good deed.

### Hedrick flies 'em now

A flying Vice President? A flying **Senior** Vice President? Grant Hedrick put the count at two for Grumman (Corky Meyer, of course, is the other one) when he soloed for the first time at Deer Park Airport last month in a Cessna 150. He began to take flying lessons last December, reporting every Saturday and Sunday morning at 8 a.m., weather permitting. Hal Smith of GDS, chief flight instructor of Grumman Flying Club, Inc., claims him as pupil, and another pilot, Jim Peters, officiated at the tie-cutting ceremony.

### Picnic time at KSC

How time flies! With weather on Long Island chilly and rainy these past few months, it's nice to be reminded that there is a sun someplace. And that place? Florida, of course.

On Saturday, April 29, the Grumman Aerospace Club at the Kennedy Space Center held its family picnic at Kars Park. About 250 people who attended were treated to bar-b-cued pork and chicken, beer, soda, and entertainment, all under the guidance of a committee headed by Howie Moon, "Web" Webster, and John Christman.

# Duke calls Lunar Module 'a great flying machine'

"You people have to know this is a great flying machine!"

So said the pilot of the Lunar Module (LM), Charles Duke, who, with Apollo 16 Mission Commander John Young, spent 71 hours on the moon, a record.

It was a successful flight for the LM. "The difficulties were quite minor," said Dr. Ralph Tripp, who's in charge of the program at Grumman, "and each of them was covered by a backup capability. At no time was the LM (Orion) in trouble."

There was a six-hour delay in the landing because of a problem in Ken Mattingly's Command Service Module, and the splashdown came on Thursday, April 27, instead of a day later, but that had no serious effect on the mission. If there was a disappointment it came on the moon when an astronaut tripped and severed a cable set up to measure heat flow in the moon's interior.

### Record haul

These faded away into relative insignificance as the Orion crew performed its tasks—with a zest that bordered on humor — and collected not only more lunar rocks than ever before but also came up with some geological surprises. For the first time in the history of the Apollo program, rocks and soil samples came from the moon's highlands. And what a collection — about 215 pounds of it! Boulders were as numerous as cars on the Long Island Expressway, and some of them were as large as a house. Duke chipped off samples from a monster-boulder and deposited them into the ever-present sample bag. He also scooped up soil from the permanently-shadowed area of a huge boulder. A geologist's paradise!

### Another surprise

A surprise, too, was that some rocks showed reverse polarity: sometimes magnetism pointed up, sometimes down. That shattered the assumption that the moon would have no such magnetism . . . and forced scientists to re-evaluate their hypotheses.

Naturally, Young and Duke were interested in finding natural, unaltered rocks; instead, they ran into a lot of breccia—rock made up of angular fragments of older rock melded together—suggesting that volcanic activity may have occurred and that later, over billions of years, meteorites have used the lunar surface as a punching bag.

The men were also interested in selecting some of the older rocks on the lunar surface. The reason was that the rocks brought back prior to this past flight apparently went back some 3.2-4.1 billion years whereas the age of the moon has been gauged at 4.6 billion years. What, then, about the "missing" half-billion years? Perhaps the specimens that Young and Duke carried to earth from the moon will shed some light on that matter.

Of consequence, too, was the experiment to photograph ultraviolet light from clouds of hydrogen. The idea there was to help determine whether such clouds exist at the outer fringes of the universe. As Walter Sullivan of The New York Times has written, "Such clouds have been suggested as constituting the 'missing mass' needed to explain the presence of the greatest visible assemblages of matter in the sky—the clusters of galaxies." So astronomers as well as geologists are anxiously waiting for analyses of the astronauts' mission . . .

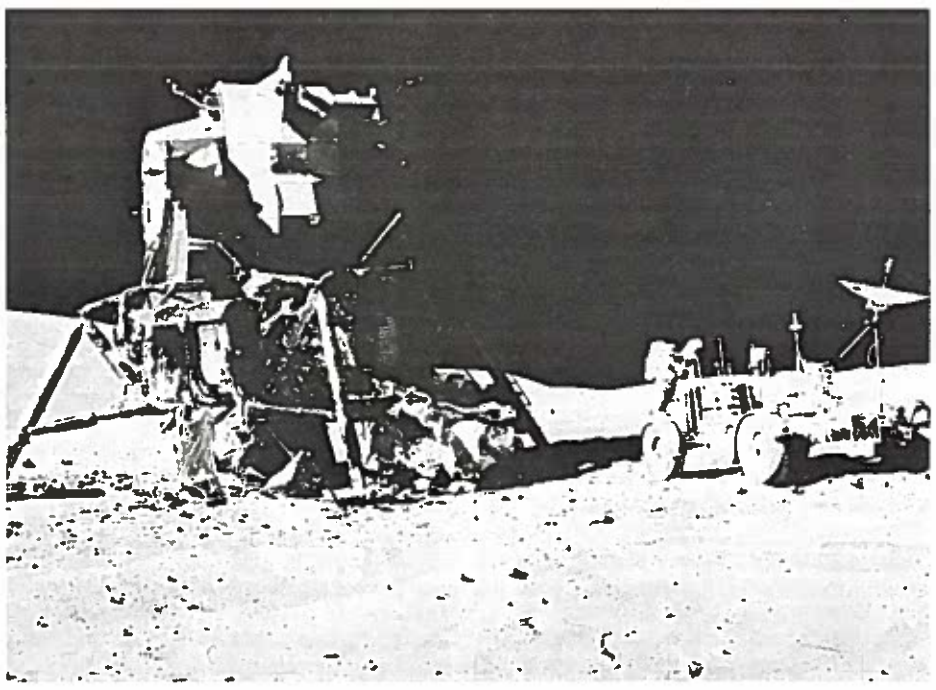
### 'Money's worth'

In one area there was no doubt. As Young commented, "You (America) got your money's worth on this one. You saw an example of goal-oriented teamwork, the kind of thing that made this country great and is gonna keep it that way.

"There are secrets in that vehicle now. One of these days it's gonna benefit us all. That basic knowledge is pushing back the last frontier, and by golly, that's essential to the survival of humanity on this planet."

In the more immediate future, Tripp's thoughts were riveted on LM-12, the final Apollo mission that's due in December. "Our people have proved that they can do the job, and LM-12 looks like the cleanest vehicle ever delivered to the Cape. But there's a great management challenge: since it's the last LM, we cannot afford to let our expertise drain away. We have to keep that dedicated team together, all the way. And of course, winning the Shuttle is one key to that. . . . . "

**The collector.** Charlie Duke, LM pilot for Orion, uses rake and tongs to pick up samples of lunar soil and rocks—heart of the geological mission. In the background, in addition to some rather large rocks, is the Lunar Roving Vehicle. (NASA photo)



**Lunar home.** Apollo 16 Mission Commander John Young moves out of Orion, his and Charlie Duke's temporary home, and past the Lunar Roving Vehicle to set up one of the many experiments that the two astronauts deployed. (NASA photo)

## Back-up team at Bethpage

During the Apollo 16 mission, all of the meaningful action was **not** going on "up there" in space or at Houston. In the Mission Support Room in Bethpage's Plant 25 some 70 or more people with intimate knowledge of Orion were on the job around-the-clock. So there was 24-hour-a-day coverage as LM progressed in support of Houston. Tucked away though they were, they played a role — for example, checking the Reaction Control System's relief valve and helping to correct a new corrected checklist. They were in on the revised surface timeline.

And supporting their efforts was a crew led by Jerry Spellman, manager of the Plant 5 cafeteria. That Food Service team turned out 1,600 hot meals, some 1,500 Danish pastries, and 308 gallons of coffee. It was an around-the-clock service appreciated by the Mission Support team.

**Leavin' on a jet plane.** Heading home after Apollo 16 mission, Grumman Aerospace Board Chairman Lew Evans and Senior Vice President Joe Gavin prepare to embark for Bethpage from Houston aboard Gulfstream II. Evans and Gavin were at the Manned Spacecraft Center, 'mission control' for Apollo flights, to witness progress of recent lunar flight.

# European (or Hawaiian) trip headlines rich Bond prize list

There you are, the two of you, luxuriating on the beach or tramping through the verdant valleys or standing at the rim of Mauna Loa or looking down at the sparkling Pacific from the top of a sheer cliff 2,000 feet high . . . two exhilerating weeks in Hawaii. . . .

Or perhaps you two prefer two weeks of delighting in the Old World sights, its centuries-old cathedrals, its historic palaces, its unique museums, restaurants, shops . . . Or then again, you and your companion might prefer 12 days on a Caribbean cruise . . . Or something for the home—a Magnavox 25-inch color TV-stereo combination.

Somebody will have that option. We'll all know who on Tuesday, June 6, when the Company's U. S. Savings Bonds drawing takes place. And this is not a one-shot one-prize affair, either 24 prizes with four alternative ones will be up for grabs, each with an option of merchandise or a trip.

All of this, of course, is to motivate people to do something that's obviously in their own self interest—to buy Bonds. After all, how can you go wrong with Bonds? Whether you look at it with a narrow "selfish" view (say, building a contingency fund for yourself) or with an idealistic "patriotic" view (lending money for use by America), it does the total job: You help yourself while helping the country. It's the best of both worlds.

## Over 90% participation

Looked at that way, it's almost impossible to believe that some people don't buy Savings Bonds. Last year, for example, nine out of 10 Grummanites were on the automatic payroll deduction plan, and you wonder about that one guy or gal in 10. How come, you ask. Is it possible that somebody's been so busy on the job that he's not had time to know about Bonds? Is is possible that somebody thinks the safest way to protect his cash is to stuff it in a shoebox under his bed? Is it possible that comebody thinks the nation is going to shut down but his money is still going to be good? Is it possible that . . . ?

Well, in truth, it's difficult to know why the Bonds drive has not hit 100 percent. It's so blasted sensible, so fantastically easy to get on the Bondwagon. All you do is fill out the payroll deduction card. Fill it out in full—your first name (**not** initial), your permanent number, your co-owner or beneficiary (if any), and the amount you want the Company to set aside for you each payday. The Company does the whole job for you. All you do is sit back and watch the Bonds roll in, with comforting regularity.

## Safe, no matter what

And you don't have to trust to a shoebox. Your Bonds are safe! If any of them are lost, mutilated, or stolen, the U. S. Treasury will replace them—at no charge.

There's another nice part of the whole thing, too — especially for those who might be classed as compulsive spenders. When you're on the payroll deduction plan you don't see that money that's being set aside for you. What a temptation-controller that is! True, a couple of months after you've received your Bonds you can exchange them for cash . . . but that involves taking the extra step of going to the bank to redeem them; and that little edge can be a safeguard. It's a protection against yourself.

In fact, the whole payroll deduction system amounts to self-protection mechanism, a kind of forced savings device that works for 16 million families. Yep, 16 million — two million people more than hold common stock in American corporations. And all of that money in Bonds—about $55 **billion**—really helps to Keep America Moving.

## Money keeps moving

The money doesn't just sit there, molding away, useless. It's **active**, moving money, money that serves as underpinning for programs the nation needs. It helps meet local and regional needs, too. It's money that helps education, medical research, hospital and clinical care, anti-pollution efforts, control inflation, national defense and much, much more. It's all part of the lifeblood of American progress.

So while you're lending the country money to help perform the essential tasks of America, through Savings Bonds, you're enriching and safeguarding yourself. Just as those Bonds don't sit there idle and dust-covered from the national viewpoint, neither do they drain away your personal wealth. Quite the opposite: They make money for you—$4 for every $3 invested when held to maturity (five years and 10 months). And when did it ever hurt to have a little bit more money around — for retirement, for putting a kid through college, for funding emergency repairs on your house, for paying for unexpected illness, for any one of a thousand or more contingencies.

As mentioned earlier, you can't go wrong with Savings Bonds.

Now that that's been determined, only three items should be mentioned. First, since Savings Bonds help you and the nation, get in on the Company's automatic payroll deduction plan. If you have any questions, or need any assistance, just get in touch with your friendly member of the Employees Services Office.

Second, if a little bit helps then a little bit more helps still more. Thus, consider making an even larger deduction if you're already buying Bonds.

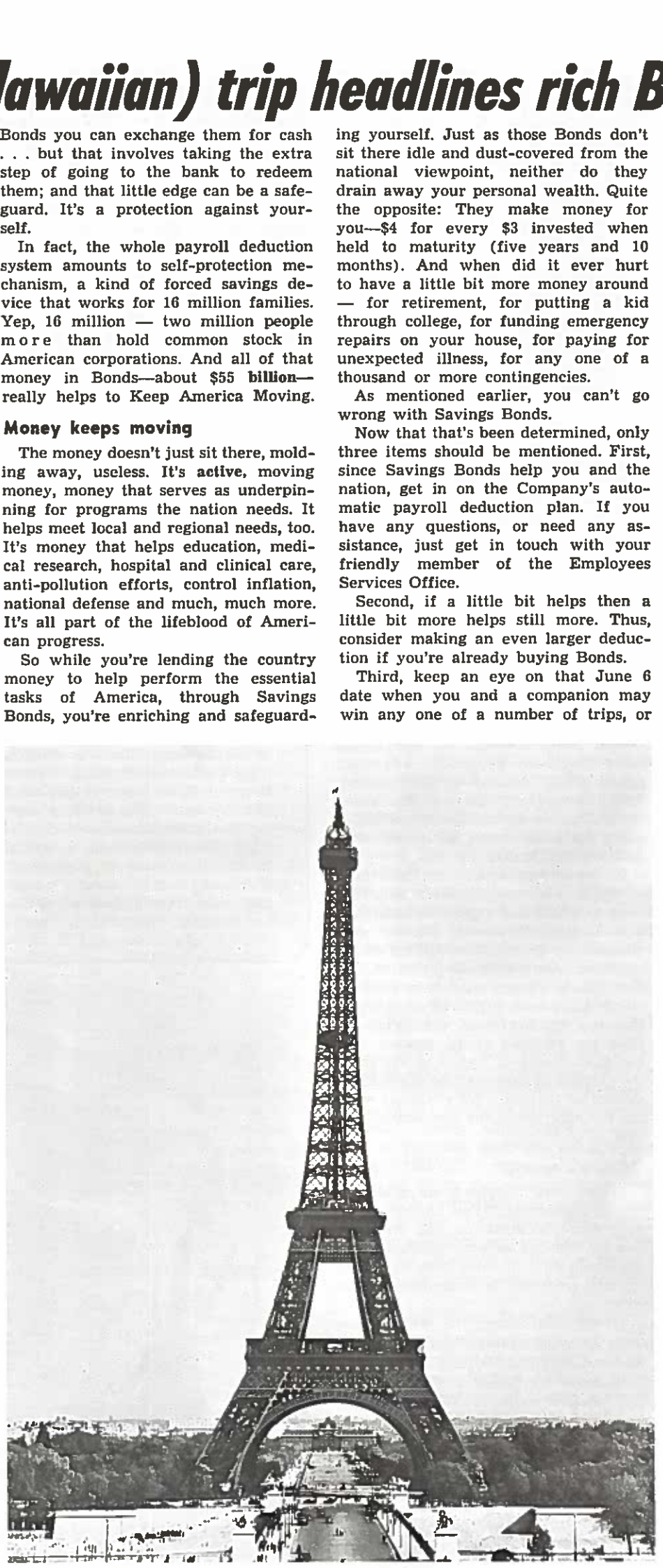
Third, keep an eye on that June 6 date when you and a companion may win any one of a number of trips, or merchandise, as listed below. And remember! Even if you don't win a prize at the drawing, you've already done yourself a good turn by joining in the Bonds drive.

Here's the complete prize list:

## And all this, too

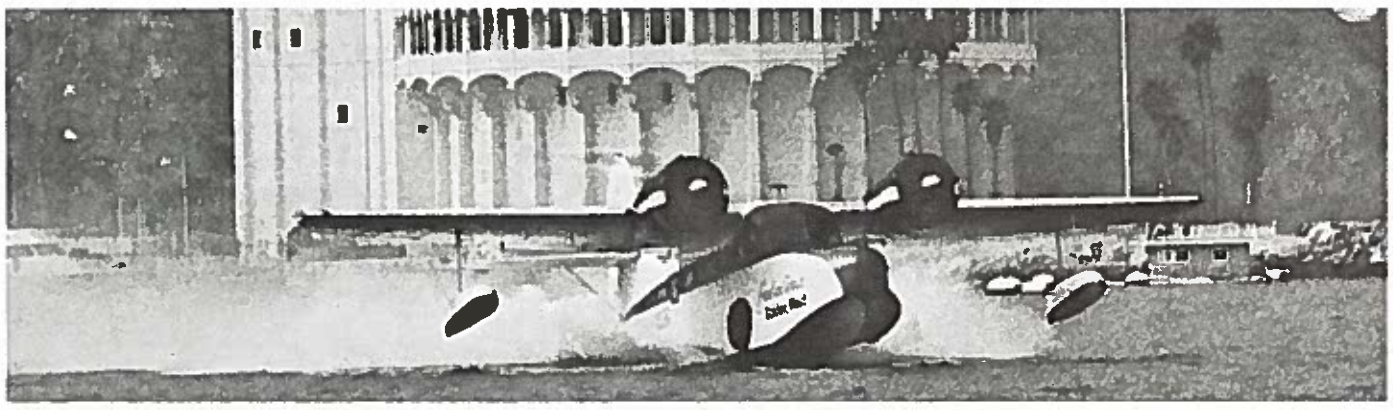
1. Magnavox 25-inch color TV-stereo combination or a choice of a two-week trip for two to Hawaii or Europe or twelve-day Caribbean cruise for two.
2. G.E. 24-cubic foot refrigerator with ice maker and crusher or choice of nine-day cruise or two weeks in Europe for two.
3. Sylvania 25-inch color console TV or choice of seven-day cruise or eight days in Europe for two.
4. Fisher 120-watt amplifier with Garrard turntable and one pair Super-dynamic speakers or choice of eight-day trip to Europe or seven-day cruise for two.
5. G.E. Americana range or Caloric gas range or choice of eight-day trip to Europe for two or seven-day cruise for two.
6. G.E. 25-inch color console TV or choice of seven-day cruise or one week in Caribbean for two.
7. RCA 23-inch color console TV or choice of seven-day cruise or one week in Caribbean for two.
8. Westinghouse duplex refrigerator-freezer or choice of seven-day cruise or one week in Caribbean for two.
9. Sylvania stereo console AM-FM or one week in Caribbean for two.
10. Magnavox 19-inch color TV (wood) with stand or one week in Caribbean for two.
11. Sylvania 18-in. portable color TV or one week in Miami for two.
12. Pioneer 70-watt amplifier with BSR tuner and one pair Creative speakers or choice of five days in Las Vegas or Paradise Island for two.
13. Frigidaire Skinny-mini washer-dryer or choice of five days in Las Vegas or Paradise Island for two.
14. G.E. 18-cubic foot frost-free refrigerator or choice of five days in Las Vegas or Paradise Island for two.
15. Caloric gas range or choice of four days in Las Vegas or Paradise Island for two.
16. G.E. 16-pound automatic washer or choice of four days in Las Vegas or Paradise Island for two.
17. Magnavox stereo sound system or choice of four days in Las Vegas or Paradise Island for two.
18. G.E. undercounter dishwasher or choice of four days in Las Vegas or Paradise Island for two.
19. G.E. upright freezer or four days at Kings Inn, Freeport, for two.
20. Whirlpool automatic washer or four days at Kings Inn, Freeport, for two.
21. G.E. 30-inch electric range or four days at Kings Inn, Freeport, for two.
22. G.E. port-a-color TV or choice of four nights at Host Farm, Pa., or Playboy Club, New Jersey, for two.
23. Polaroid camera outfit No. 360 or choice of four nights at Host Farm,

*(Continued on page 12)*



**And you are there. . . .** Indeed, perhaps you will be, right there at France's famous Eiffel Tower. Or, perhaps at Mauna Loa in the Hawaiian Islands . . . or on a Caribbean cruise . . . or at home with a new Magnavox 25-inch color TV-stereo combination. And there are lots more prizes to be won in the Savings Bonds drive drawing coming up June 6.

# Goose alive and well, and living in Catalina



Wide World photo

Thirty-five years ago this month, Grumman's prized amphibian, the Goose, made its first flight.

Today the Goose aircraft are still in service, and among other places, they fly the 35-mile trip between Los Angeles, Calif., and Santa Catalina Island. And business is brisk: Two competing airlines—Catalina Airlines and Catalina Seaplanes—carried about 150,000 passengers last year.

"People fly in these things," says John Pinney, chief pilot of Catalina Airlines, "because they want to fly in a Goose. It's an adventure."

According to Bill Kilgour, pilot for the competing line, "I've been at this 14 years and people ask me why I do it. I just tell them I like Goose driving." Kilgour estimates that he's made the 15-minute flight about 24,000 times.

For many, the flight is a tourist attraction, but for the 1,500 residents of Catalina Island it's a taxi service. Making the trip by ferry boat requires about two hours. So the Goose—however anachronistic it may appear to some—is a live, real service . . . and even the pilots like the duty.

# *Grumman Allied 'plugging in' to modular buildings market*

"Now, from the people who helped bring you the moon. . . . Grumman brings you modular buildings at down-to-earth prices."

Readers of The New York Times and The Wall Street Journal one day last month came upon a big display ad for Grumman modular buildings, "the buildings of the future," the ad said. A coupon listing the Garden City address of Grumman Modular Buildings invited requests for information in these eight areas of interest: residential development, apartments, hotel complex, motel complex, commercial, educational, medical, camps.

"The ads reached the people we wanted them to reach: people who are thinking in terms of multiple buildings of 10 or more units. We've received 1,800 replies so far, from literally all over the world, and all over the United States," said Bob Farren, general manager for this new division of Grumman Allied Industries, Inc.

### Start-up date in July

Observing that the marketing program is well along and that production is scheduled to begin in July, Farren said the Grumman plan is to concentrate on sales not to individuals seeking single dwellings, but to builders and their architects, to land developers, or to hotel-motel chains and others with a need for multiple units. "And we're convinced there is almost unlimited potential here," says Farren. "We had a coupon from someone who indicated an interest in 30,000 units." Farren and Kip Towl, who is working with him to develop the market, have had conversations with architects who at first resisted the basic standardization in manufacturing but then were persuaded of the advantages in starting with a basic module and custom-tailoring it.

Farren has a succinct way of looking at the philosophy of modular housing: "It used to be that a brick, 8x2½x3½ inches, was the basic unit of home construction. Now our 'brick' has grown to 50x8x24 feet."

On a 31-acre tract in Montgomery, Pa., 10 miles from Williamsport, Grumman Allied is erecting a complete new building, which is now close to completion, he reports. It will be the production site for both Grumman Modular Buildings and Grumman Motorhomes—50,000 square feet for each. Bob Somerville of Grumman Allied will initially be in charge of manufacturing both the Modular Buildings and the Motorhomes. Program manager of the Grumman Motorhomes is Wells Darling.

Looking at drawings of the Grumman Modular Buildings the curious might ask about two girders that grab each complete module. These are strong structural steel stacking frames that in the shop serve as assembly fixtures. When the unit emerges from the shop, the stacking frames go right along, first as a transporting device, then a hoisting sling, and then as a stacking frame. "Construction" at the building site is so simple that an untrained crew can have everything ready for living in less than a day, Farren says. Preparation of the site, the bringing in of utilities and sewage system, will have been going on during manufacturing of the modules at Montgomery.

"When the shell is being completed to the architects' or builders' specifications," says Farren, "all those personal comforts of a modern home will be being included: interior walls, rugs, plumbing, kitchen cabinets. . . . It will be 'wired and plumbed,' ready to be plugged in on delivery to the site."

### Choice of materials

Building materials? Wood, steel, plywood. Finishes? No limit: paneling, shingles, formica, shakes—applied at the plant. Foundation? None. Four concrete piers, one of which brings in the utilities, are in place to receive the stacking frames. The module floor is of stressed skin plywood panels separated by "two by sixes," with fiberglass batts between. A vapor seal is achieved above the ceiling and beneath the floor with Hypalon or chlorinated polyethylene membrane. The floor is bolted to the assembly fixtures, and 60 bolts fasten the two 12-foot-wide halves of the module together.

"Add the furniture and the people," says Towl, "and you've got a modern home—or a clinic unit—or a classroom or a motel unit."

Cost? A 24x50-foot module with three large bedrooms, two full baths, utility room, full kitchen with wood cabinets, living room, and dining room, with carpeting and acoustical tile, will cost roughly $14,000, F.O.B. Montgomery.

Is Bob optimistic? "The overwhelming response to the advertising, coupled with the enthusiastic response we're getting from sales prospects greatly encourages us," Farren said last week. "All this prompts me to begin considering where we'll put the next plant," he added with a wide smile.

**Modern housing.** In July Grumman Allied Industries will begin the manufacture of modular buildings in a plant just being completed in Montgomery, Pa. Developers see them as homes, classrooms, clinics, motel units, all ready to plug in and start using when delivered from the factory. Hilly, 'unbuildable' sites can be exploited with varied arrangements.

## Greetings . . .

were extended by Vice President Tom Rozzi to Field Base administrators from Grumman sites around the country a couple of weeks ago when they came to Bethpage for an update on Corporate policies, procedures, and so on.

Here, Rozzi draws a smile from his audience before they started to dig in on a week-long refresher course on medical benefits, personnel policies, retirement, field pay, and all those other things administrators are expected to be expert on.

Photo by Bob Settles

## congrats . . .

were in order for Cdr. Chuck Berthe (R) of the Naval Air Systems Command and E-2C crew members — pilot Dick Van Allen, John Koszeghy, Ron Bies, Jim Schnaderbeck—who were met by Jim Philbin (2nd R), assistant to the E-2C Program director, following a successful demonstration of a modified autopilot on the Hawkeye.

The new E-2C autopilot, which (for those more technically minded) includes a three-axis automatic control-surface balancing feature, is expected to significantly reduce E-2C autopilot maintenance in Fleet service.

Photo by Larry Van Wallendael

## and sendoff

to NASA of metallic heat shield, an in-house Research project since 1969 that was developed for possible use on the Space Shuttle, occurred earlier this spring.

Snapped in the Plant 2 Prototype Shop before delivery to NASA Langley Research Center is a full-scale metallic heat shield panel designed to protect the lower surface of the Shuttle Orbiter. Vee Varisco (L) is AD project engineer and Contract Program manager, Tom Taglarine (C) is Advanced Development Structures manager, and Ed Leszak of Manufacturing & Production supervised fabrication.

To date, three generations of cobalt alloy shields have been fabricated and tested under simulated launch and re-entry heating conditions, Varisco said. The work led to a contract award from NASA Langley Research Center to design and build four components for testing and evaluation by NASA.

Further NASA testing will include a wind tunnel test, a sonic fatigue test, a flutter test, and a vibration test. The wind tunnel test will provide a realistic environment including flutter resistance, will give results on extent of hot gas flow in joints and resultant internal heating, and identify any unforeseen problems that can occur only in a simulated flight environment. The test will be conducted in Langley's Mach 7 High Temperature Structures Tunnel.

The heat shield assembly shown was designed to resist a maximum temperature of 1800° F. It is made of HS 25, a heat-resistant cobalt alloy. The heat shield is a radiative system and includes a separate self-contained insulation package. The panels were fully instrumented at Grumman, Varisco said, and they include thermocouples, differential pressure transducers, deflection transducers, and strain gages.

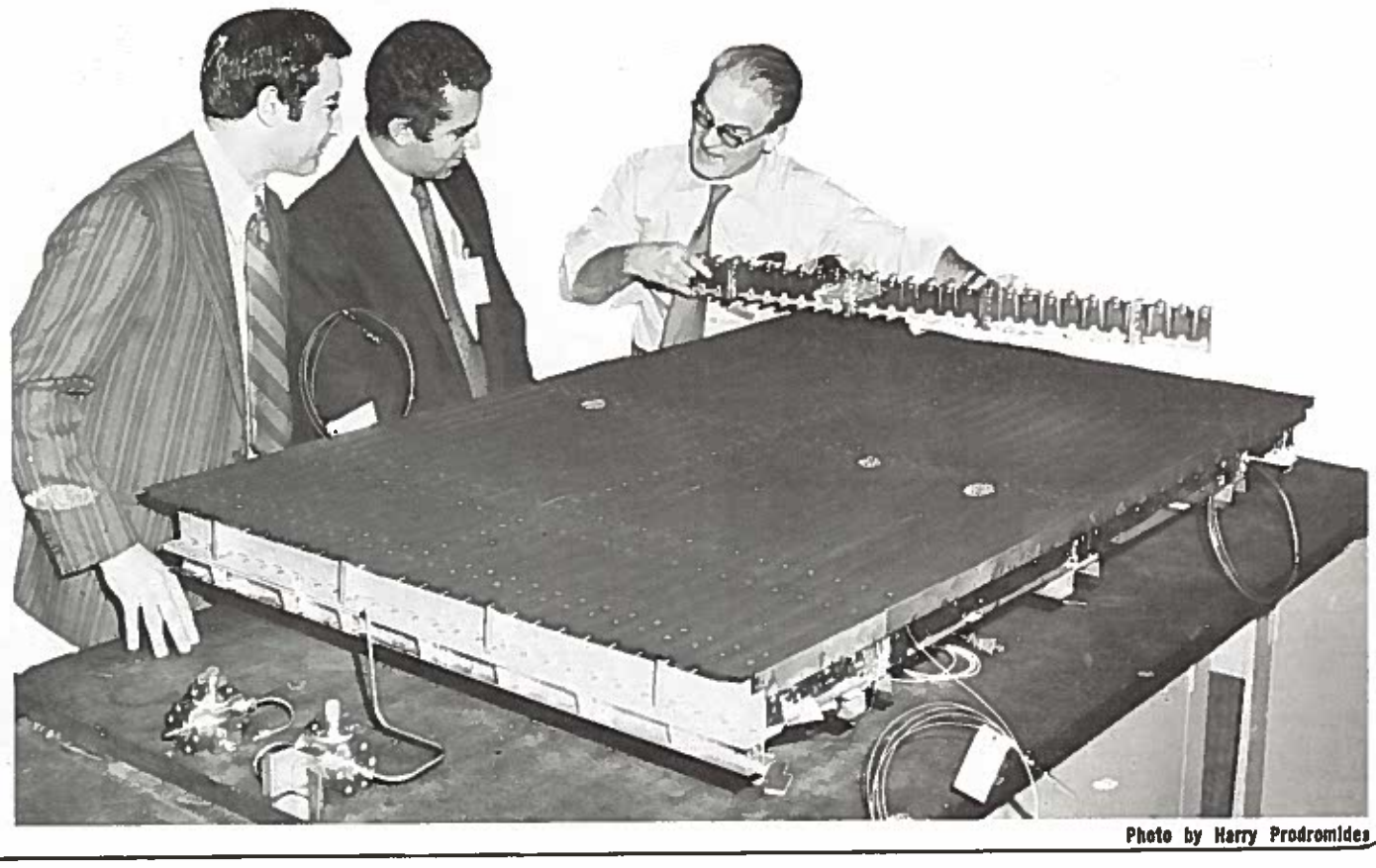


Photo by Harry Prodromides

# Rochell Brown looking ahead to future in 'new towns,' U.S.A.

Spring being the season for commencement and degrees, it may be an appropriate time to zoom in on a young man in a new field, with a new degree, and a plan for new cities that may develop a pattern for the 21st century. His name is Rochell Brown, and for the past nine months he has been working in Business Development as an intern under Grumman's Cooperative Education Program. He is in San Antonio, Texas, this weekend to receive a Master of Science degree in Urban Studies from Trinity University. The title of his thesis: "Aerospace and New Towns."

This is the eighth year that Grumman has encouraged undergraduate students to spend their "work" period in an appropriate department. It's a two-way street, in which the enthusiasm and a searching approach by the student stimulates the Company, and the practicality of the marketplace tempers the theoretical. The student receives academic credit and is paid for his work. Brown is the first graduate student to intern at Grumman.

### Chance meeting

In the years since the Army took him (March '66-January '69), Rochell Brown has gathered a vast store of information on urban planning and the role of the Federal Government in financial backing for "new towns." He became interested in Grumman and its Cooperative Education Program after a chance meeting in New Orleans with Bob Garrett of Business Development when both were attending a meeting of the American Society of Planning Officials in March of '71. "We started talking," he said. The talks proved fruitful for Brown, and he was accepted as an intern in the Cooperative Education Program last August. After earning a Bachelor of Arts degree in sociology from Trinity in the summer of 1970, he had plunged into the comparatively new field of urban planning. At Grumman he has found practical approaches to many subjects that are pertinent to urban studies for the future: data systems, ecological systems, health, transportation, mapping, housing, waste treatment, training. . . . "Very good experience," he says.

**Rochell Brown**
*Looking toward 21st century*

Brown, who is 28, is married to the former Sara Mason. They are the parents of a two-year-old son, Rochell Melvin Brown II (called Rocky), and have been living in Lynbrook while he works for Grumman. He was born in Brooklyn, enjoyed the years in Texas, and plans to return there.

### Business investment

New town planning he sees not as a social crusade but as an investment by business and industry looking to make a profit from investment in a whole new urban area. He emphasizes the incentives for "new town" development offered by the Federal Government in the New Communities Act of 1970. Primarily these are intended to reduce the risks of investment by providing Government-backed loans for the investors. He says that HUD (Housing & Urban Development) has made loan guarantees to seven cities thus far: Jonathan, Minn., Park Forest South, Ill., St. Charles, Md., Flower Mound, Tex., Maumelle, Ark., Amherst, N. Y., Lysander, N. Y. Included in new communities under construction or authorized are these near-by areas: White Plains, Mitchel Field, Welfare Island, Battery Park City, Harlem River Park, Sterling Forest.

By the year 2000, some housing experts project a dozen major urban regions representing 218 million people—a big potential for a young man to pursue.

"Will you return to Grumman?" he was asked. "Not at this time," he replied. "I'm looking for a new job opportunity." He has the air of a man with a mission, impatient to get involved.

# CALENDAR of events

Notice of events for period May 26 - June 16 should reach Plane News by Tues., May 16.

**Ama. Radio Club:** Wed., May 17, 5 p.m., WA2LQO radio shack on the roof of Plt. 5, field day plan. Radio sta. WA2LQO is open every Wed. at 5 - 7 p.m. Emmett Goodman, Ext. 87125.

**Duplicate Bridge Club:** Every Thurs., 5:45 p.m., Plt. 3 cafe. S. Stone, Ext. 3652.

**Ex-Searvicemen's Club:** Vets counselor avail. Thurs., Plt. 2 ofc. (nr. lobby) Ext. 2814. Al Kordula, Ext. 87259.

**Family Campers:** Fri. thru Tues., May 26 - May 29, Camplands of Swan Lake, N.Y., Memorial Day rally. Bill Lord, Ext. 2914.

**Fenc. Club:** Mondays, 5-7 p.m., Plt. 30 cafe, instr. in fenc./competition. A. Chomas, Ext. 1926.

**Fly. Club:** Fri., May 12, 5 p.m., Plt. 28 audit., FAA film "Plane Sense." Stan Kalemaris, Ext. 7341.

**Inst. Soc. of America:** Fri., May 12, 8:30 p.m., Holiday Manor, annual mtg., spkr. Hon. Charles A. Jerabek, N.Y. State Assemblyman. Ed Conroy, Ext. 9515.

**Retiree Club:** Wed., May 31, 1:30 p.m., Holiday Manor, reg. mo. mtg. GAA, Ext. 2133.

**Soccer Club:** Sat., May 13, West Point. Karl Herrnkind, Ext. 3470.

**Soc. of Log. Engineers:** Thurs., May 18: 5:30 p.m., Old Country Manor, 244 Old Country Rd., Hicksville, L.I. Chap., cocktail/dinner mtg., spkr. Blair H. Wetzel, Vice Pres., Soc. of Log. Engrs. on "Prof. Certification for Logisticians." Jack Beiderman, Ext. 2091.

**Stamp Club:** First 3 Wed. of ea. mo. at 5 p.m., Plt. 30 cafe, swap, circuit bks., sales, auctions, discussions. Marty Harow, Ext. 9171.

# Drawing to aid POW families

Although Mother's Day is coming up this Sunday, May 14, there are a lot of Dads who won't be home to help Mom celebrate the big day . . . and they won't be home for Father's Day, either. The unlucky ones are POWs—prisoners of war—and they're being held in communist prison camps in Southeast Asia.

Letter-writing campaigns, marches, and personal appeals have been to no avail so far, but a West Coast airline officer has something planned that he hopes will bring financial relief at least to some POW families.

According to Norm Gandia of Business Develpment, Plant 5, there's a giant "swap" campaign being conducted on the West Coast to get funds for POW families. Norm says that an old friend of his, L.P. "Ski" Kaine, a first officer for PSA, decided to "swap" two new electric razors he got for Christmas for items of somewhat greater value. Eventually, he hoped to get enough valuable items that he could turn into cash, and with it, assist families of POWs.

First, he got his airline passengers in on the "swap." Now he has asked Norm for help. The swapping is over and "Ski" is looking around for cash donations. That's where Norm hopes Grummanites will assist. Each donation —a minimum of $1 has been suggested by Gandia—entitles the donor to a "chance" at the items up for disposal.

Ever think about owning a Tennessee Walking Horse . . . or a 10-acre parcel of land in Humbolt County in Northern California . . . or maybe a "mystery" car? Those are some of the 10 prizes up for grabs. In all, the items are worth more than $12,000.

Get in touch with Norm on Ext. 2185. If he's not there, ask for Tony Nargi or Marlene Allen. Remember, the big winners will be families of POWs.

And can you imagine what the guys in the department will say when you ride to work one day on a Tennessee Walking Horse. . . .

## GII production on rise

Beginning last January, production rate for the Gulfstream II corporate transport was increased to 1½ a month, reflecting an upturn in the national economy and in sales potential. Fifteen G IIs are scheduled to be built this year.

Al Lemlein, Plant 55 general manager, in Bethpage for meetings last week, said that with the increase in production of Gulfstream II airplanes to 1½ a month, the number of employees has increased by 140. Some are rehires, some are trainees.

The GII Service Center at Savannah, under Goldie Glenn and Howard Sandbeck, is very busy; the 1,000th "student" had just been "graduated" from Gulfstream pilot training in April: a good excuse for a little celebration.

Dino Hadjis is the newest production test pilot and training pilot at Plant 55. Dick Seitz from Health Systems is now working with Goldie Glenn in Service and Support, while Horace Moore is Engineering manager at Savannah.

**Home again.** First of 192 A-6A Intruders scheduled for modification to A-6Es was delivered to Calverton last week from the Naval Air Station at Norfolk, Va. Greeting Lt. Cdr. Bob Elzey (C) and ADR3 Larry Christner of VRF-31 is Pete Remington, A-6 deputy director-Production. In addition to the 'mod' program, Grumman is also building new A-6E Intruders at Calverton that contain more advanced radar, computer, weapons release, and displays. (Photo by Ed Finnick)

# They're celebrating!

Capt. Bob Belter, the Naval Plant Representative at Bethpage, gathered with eight long-time Navy employees at Plant 35 recently to mark their 30th anniversary in Government service. Presented with 30-year emblems and certificates by Captain Belter were Vito Cafaro, Joe Ferme, Florence Gioe, Martin Lauer, Joe Phelan, John Ragan, Frank Stagnato, and John Urgo.

After the presentation it was time for coffee and cake for the eight, their spouses and friends with Bob Belter wielding the cake-cutter.

**Happiness is.** Judy Porter of Quality Assurance, Stuart, Fla., flashes the smile of a winner as Grumman Chief Inspector Dinny Gagnon (L), accompanied by Art Melrose, general manager of Plant 77, presents her with $500 bond award in Corporate Suggestion Program.

# Intruders take on Nassau Police in Industrial slow-pitch opener

There are five new men on the Grumman Intruder roster this year, and manager Jack Keane expects them to help the varsity slow-pitch team gain a national championship in 1972. The Intruders will know what their chances are in title play this year rather early. They open against the Metro L.I. Industrial champs, the Nassau County Police, on Sunday, May 21, at Cantiague Park in Hicksville.

### Add five to squad

Keane and coach Fred Vitale announced that they were keeping infielders Al Grillo, Ted Weiss, and Pete Veteritti — they expect heavy-hitting from him, outfielders Gary Ferrone, and a returning veteran, Joe Sousa, because of their standout performance in tryout sessions.

Returning from last year's team are Joe Cavalluzzo and Ron Bartlett at first base, Joe Rivera at second, Dom Pagnozzi at shortstop, and John Andrews at third. Outfielders are Bill Dierks, Bob Wagner, Joe Stalzer, and West Douglas, with Gene Rica and Tom Smith catching, and Al Wallace and Dan Cooper pitching.

It should be an interesting year for the Intruders because they will be competing against many of the best teams in the Metropolitan-Long Island area: County Sports, a past national open champion; South Shore Stores; Angelos; Wantagh Nets; Nassau County Police; Pepsi Cola; LILCO; and New York Telephone Company.

For Jack Keane and the Intruders, it all starts Sunday, May 21, at Cantiague Park. They hope they end up in the National Industrial Championship next fall.

# Set softball season opener Monday, May 15

Are the Oldtimers for real? . . . Or was it a fluke when they surprised some of the youngsters at Plant 1 last year by running away with the playoff title. The big question is: can they do it again?

Ask Robby Robinson. He'll say "yes." And so will Frank Jagiello. But what the hell, they are Oldtimers, and they've been saying "yes" for years.

How well the Oldtimers will survive the 1972 season might well be answered on Monday, May 15. That's opening day at Plant 1 and for all the other intraplant leagues on Long Island. In addition to the opener at Plant 1 between the Oldtimers and Gnomes, the Grumman Athletic Association has listed these games:

**Plant 2:** LM Stock vs Commanders
**Calverton:** New Breed vs Metfits
**Wyandanch:** Muffers vs Soul Brothers
**Nite Owls:** Tom Cats vs Flyers

In all, there are 18 teams in the five lunch-time leagues.

A week later, Monday, May 22, the after-hours loops will be getting their season underway, with competition scheduled for every night of the week except Friday.

Twilight play has become much more popular in past years and the number of teams competing after-hours proves it. The Monday night league has 10 squads, Tuesday, 13; Wednesday, 14; Thursday, five.

# Baumgarten leads Cs' title march

Winning is the name of the game—in sports, at least—and the Grumman C pistol squad proved it learned its lessons well. Although they aren't the highest scoring combination in the loop, the Cs won 11 of 12 matches in the sharpshooter division to capture the L.I. Industrial championship in that competition.

Mike Baumgarten fired 264 to pace the Cs' victory final over Pan Am, with Tom Lovatt adding 244, Bill Rommell, 206, and Charles Quitter, 220.

The B team, with an opportunity to tie for the team championship, lost to Republic, 978-997, to close with a 10-2 record. Harold Saltzman shot 252, Doug Crooks, 246, Mort Weinberg, 246, Bill Boyce, 234.

In the expert division of the Industrial circuit, Al Berka registered 281 out of a possible 300 in .22 caliber pistol action. That total, high for Grumman shooters in recent matches, helped the Grumman Ds run up a 1,086-1,083 victory over Pan Am "B." Jerry Minerva's 274, Art McKee's 267 and Roger Seybel's 264 rounded out the scoring.

Without Berka, the D squad lost to Brookhaven Lab, 1,028-1,064.

# Quarto, Krol pace Newcomer sweep

Frank Quarto and Ed Krol led the Newcomers to two straight wins over the Hustlers in the Tuesday after-hours league playoffs recently, enabling their team to sweep the title series for the second straight year.

The high-scoring combination of Quarto and Krol contributed a total of 67 points in the opening 128-88 victory, then came back to add 64 more as the Newcomers clinched the championship with a 109-100 decision.

Krol led the scoring in the first contest with 36 points, with Quarto adding 31 and teammate Doug Kueling 23.

### Cruthers stands out

In the final game, the Newcomers, winners of regular season play, had a more difficult time closing out the Hustlers. Quarto hit for 36 points in the 109-100 victory and Krol and Kueling contributed 28 and 18, respectively, but it was Jim Cruthers of the Hustlers who took scoring honors. Cruthers had 42 to go with 27 points he had scored in the first game.

# Lomot shoots record 258-668 to head late-season pin action

Maybe it was just his way of celebrating a little early—maybe he thought it was about time to change some of the names on top of the league listings . . . but no matter what the reason, Ed Lomot, who with his wife is expecting their third child at any time, charged into the lead for individual honors in the Aerospace loop recently by turning in a sparklng 207-258-203 and 668—and with them collected high game and high series marks in the league.

The game mark lasted a week. Clem Joie came back in the next session to throw a 258, thereby gaining a tie with Ed for high game. Among the other standout pinspillers in the league were George Fowler, 233-224-651 (which also snapped the old series mark of 636); and Tom O'Connor, 219-249-641 (ditto). In a later session, Joe Oakes threw a 244-615, and O'Connor added 247-606. In the **Patchogue Mixed** league, highlights included: Maggie Gaynor's 211-606 (which broke her own record); Lois Haas's 509, Ken Becker's 207-568, Dave Struller's 202-543, and Dick Lindstrom's 212-541.

Standouts in **Classic** competition were: Jack Diana, 200-247-631, and Bob Carlin, 238-597, while **Hellcat** listings included: John DiSalvo, 216-587; Bud Earhart, 224-585; Vick Biannano, 246-579; and Art Lih, 213-574. . . . **Century Mixed** standouts were: Bob Cozzette, 206-583; Nancy Gentzlinger, 537, and 220-544; Bill Kallansrude, 222-564; Helen Miller, 488; and Marilyn Cozzette, 505. . . . **Blue Mixed** highlights included: Lottie Treghnagli, 201; Pat Roth, 494; Joy Olenick, 185; Louise Stensland, 215; John Traina, 548. . . . Don Voigt's 251 and Tom Maurici's 235-615 led the **Classic** listings.

### Oczko Red star

Although the Spares' Walt Stehlin did his bit to keep his team on top of the Black circuit with a 220-567, the big hitter in that competition was Frank Oczko with 221-243-644. Following him were Nick Bilogan, 235-213-630; John Barnes, 203-575; Ed Burlingame, 214-203-613; Hank Lada, 210-574; Fred Kuehne, 202-221-595; and Steve Haras, 221-581; and Wil Buck, 565. . . . **Nite Owl** highlights included Ernie Jenkins' 234-206-619, Earl Schroeder's 224, Al Stark's 211 and 213, Angelo Pomponio's 225, Rudy Dunkley's 223, and Gene Piwowar's 223.

The Raskals ran away with the Masters team title, but the Whoizees and the D.J.s went at it in the final session for runner-up honors. John Betterino threw a 243-227-852 in the four-game set to spark the D.J.s, while teammates Jerry White and Don Eivers fired 244-840 and 232-771, respectively, to push their team to a team scoring record—but alas, it was not enough for second place. Jack Nielsen's 222-574 and Joe Russo's 213 helped save that spot for the Whoizees. . . . Dom Bello's 202-208-554 and Vin Esposito's 200-209-550 were standout **Rocket** scores.

### Hang on for title

Twenty-one consecutive rounds in first place—that was the record the ABs carried into the final in the Syosset Mixed League. And Sandy and Jim Gould, Mary Ann Waage, and Pete Blaschuk breathed a lot easier when they made it 22, 'cause that magic number clinched first spot for them over the Get Psyched. Headliners in that league included Ed Miron, 257-555; Bill Meehan, 216-216-615; John Metterino, 223-603; Mary Ann Waage, 213-477; Monica Wojtyniak, 516; Sue Degnan, 472; Rita Mathia, 206-517. . . . **Hawkeye Mixed** listings included Tom Murtha, 234-580; Charlie Calabria, 221-552; Marge Schultz, 487.

Joe Whelan punched out a hefty 634 in Classified action recently by tying together games of 226 and 246, while Al Stern hit 223 and 232 in a 625 string. Bob Ingram's 202-207-570; Otto Peters' 202-562, and Mike Mustapich's 207-562 were other bright spots. . . Ken Smith and Hank Mehl fired 201-581 and 211-593, respectively, in recent **Trader** play to keep the Penny Pinchers in title contention, just 1½ points behind the Jets.

**Ed Lomot**
*Sets Acrospace mark with 668*

John Laporta couldn't do anything for the Lucky Strikes with his 212-212-617 in the Red league, but he did put himself in strong contention to win the top prize in the GAA bowling ball-bag-shoes sweeps at season's end. Other standouts: Bob Nielsen, 202-223-617; Joe Glasser, 204-215-614; Ben Monte, 206-215-602; and Charles Marchessault, 241-600. . . . Diane Youngs' 177, Martha Juppe's 499, Henry Pirkl's 537, and George McGrellis's 213 were top scores in **Woodbury Mixed** action. . . . Finally, Joe Morrison's 591 and Bob Renman's 225 were **Blue** headliners.

## Summer pin meeting

There will be an organizational meeting of the Rainbow summer mixed bowling league next Wednesday, May 17, at Syosset Lanes, starting at 7 p.m. If you are interested in participating in league play this summer and can't attend the meeting, call Herb Mahoney, GAA, Ext. 2133 or 2269. As an added attraction, says Mahoney, members of the Grumman varsity pin team will be on hand to offer bowling tips on May 17.

# Squicciarino, Repperger combo wins table crown at Bethpage

It seems that every couple of years, John Squicciarino and Ray Repperger of Transportation put it all together—and when they do, it usually spells bad news for their opponents in the Bethpage A doubles table tennis play.

That was the case this year. John and Ray—sounds like an old vaudeville team—started off rather badly. In fact, it couldn't have been worse. Sam Barcia and Fred Danner whacked Squicciarino and Repperger 21-17, 17-21, 21-12 to plunge them into the losers' bracket. From there, there was no where to go but up . . . or out.

Starting with a 21-11, 11-21, 21-16 win over Ron Viscounti and Charlie Ballweg, John and Ray kept right on going through Fred Sacca and Dick Smith, 21-17, 21-19, Clint Watson and Al Clark, 21-7, 21-17, and Barcia and Danner—their first-round opponents—22-20, 21-18.

That spree put them in the final playoffs against Vince Perniciaro and Chris Rizzuto, who, until that time had zipped through the winners' bracket with ease. In the first meeting, Squicciarino and Repperger came through with a 20-22, 21-17, 21-12 victory to give their opponents their first defeat in the two-defeats-and-out tournament.

Then, in the final three-out-of-five game match for the championship, John and Ray outlasted Perniciaro and Rizzuto, 21-15, 12-21, 21-17, 16-21, 21-17. It meant they had won the Class A doubles table tennis title. They've been on top before. And probably will be again. It's those in-between years that upset the Transportation duo.

In the B division doubles finals, which involved runner-up teams from Bethpage intra-plant competition, it looked like easy going for Al Beyerlein and Rocky Famiglietti after a 21-11, 13-21, 21-10 win over Sau Eng and Chek Yee. Following that, a 21-13, 21-17 victory over Herb Winkelman and Al Clark put them in the finals.

But the sweet wine they were ready to sip as victors suddenly turned sour. And it was Eng and Yee who were the culprits. Coming out of the losers' bracket in the two-defeats-and-out play, Sau and Chek posted a 21-16, 21-16 match victory that set the stage for the three-out-of-five finale. That proved to be a sweep, too, as Eng and Chek breezed past Beyerlein and Famiglietti, 21-14, 21-18, 21-13 for the B division crown.

## Kick it! . .

Have you stopped yet?

Smoke Watchers has helped and is ready to help again. Applications for a new Smoke Watchers class will be received on Monday evenings at Plant 28 at 5:15. The registration fee is $4, and the weekly fee, $2.50.

Do you really want to stop? "Smoke Watchers" may be your answer. For additional information, call GAA, Ext. 2133.

## Just call them 'Ace'

There they were, Vice President Jack Rettaliata and Fred Hawkins of Public Affairs, playing golf on dawn patrol one chilly morning recently in a round that could hardly be termed outstanding. But before they had finished the ninth and last hole at Hill and Tree—a 101-yarder—Fred suddenly became a celebrity of sorts.

With no one other than Jack in the party to witness the event, Fred joined an ever-increasing group at Grumman by dropping an ace on the final hole, then bought drinks for everybody in sight. It came as no surprise to friends of Fred Hawkins that he'd celebrate the hole-in-one that way—especially when they heard that he and Rettaliata were the only ones on the course that morning.

What club did he use to gain the golf "hall of fame" at Grumman? "I'd like to say it was a wedge," says Fred, "but in reality it was a punched seven-iron. The ball bounced twice and then landed right in the cup."

Ask him about it; he may be giving out rain checks on the drink.

### Costly stroke

Ron Reiss, who's manager of out-of-production spares, wasn't as lucky as Hawkins. Ron had the honor of registering the first hole-in-one this season at Grumman—but it cost him. Thirty-eight dollars to be exact. One fellow, he claims, was painting his boat, heard the news, and hustled down to the Nissequoge Golf Course to get in on the drinks that Ron bought to celebrate.

Reiss's ace came on the second hole at Nissequoge — a 150-yard hole with the green surrounded by water—and he used a six-iron to register his first hole-in-one. Now he's looking for "drinks" insurance in case it happens again. Hawkins has his—he'll just keep playing with Rettaliata at dawn.

## Calling all girls . . .

In the spring, a young girl's fancy apparently doesn't turn toward softball, because Hannah Washington, who manages the women's varsity softball team, is having trouble getting enough girls to represent the Company in the L.I. Industrial league.

There are plenty of positions still open, says Hannah, and there is need for reserves on the squad, too. Practice is scheduled every Tuesday and Wednesday afternoon at the Plant 3 field, starting about 5 p.m. So all you girls who like to throw the ball around, start getting in shape for the season ahead. Hannah's on Ext. 86411 in Plant 15 and she'll answer any other question you may have.

Come on out.

## Lost

**CHARM:** For bracelet, Grumman 5 yr. pin on gold disk. SU 5-8911.

## For Rent

**ROOM:** Walk. to Bethpage plts., pvt. ent., semi-pvt. bach, gent. only. WE 5-5256.

**ROOM:** Furn., nr. GAC, pvt. bath. 796-8106, after 5.

**TENT CAMPER:** Apache Buffalo, slps. 6, dinette, $55/wk., $30/wkend. 727-5848.

**APT.:** Floral Pk., Nassau County, 4 rm., pvt. home, nr. all stores & transport., pvt. ent., $275/mo., util. incl., July occup., gar. avail. 212 386-9358.

**APT.:** Lake Ronkonkoma, 3 rm., pvt. ent., bus. couple only. JU 8-4138.

**CONDOMINIUM APT.:** Cocoa Bch., Fla., ocean front, 2 bdrm., bath, carpet., drapes, air cond., heat. pool, furn. or unfurn. AN 1-1611.

**ROOM:** East Meadow, lrg., furn., pvt. ent., bath, refrig., TV, nr. shop. ctr. 333-7849, after 4 p.m.

**ROOMS:** Furn., Stewart Ave. nr. Bethpage complex. 928-6999.

**STUDIO RM.:** Wantagh, furn., bath, private ent., grnd. fl., gent. pref. 221-7618.

**DOCK SPACE:** Bulkhead, canal ft. avail., nr. Woodcleft canal, Freeport, reason. WA 1-3898.

**GARDEN APT.:** Holbrook, 4½ rm., dish. wash., swim club, $256/mo., 2 mo. security. 589-8638.

**HOUSE:** Commack, 7/72 thru 6/73, $450/mo. 864-7984.

**TRLR.:** Hdtp. camper, slps. 7, foam matt., gas range, sink, icebox, dinette. HA 7-7344.

**HOUSE:** Dingmans Ferry in Poconos, 2 bdrm., din. rm., us of boats on lake, pools. LI 1-5177.

**HOUSE:** Shoreham, 2 bdrm. furn., $250, util. approx. $65 add., add. $50 for 3rd bdrm., avail. thru Aug. '73. 744-6921.

**BCH. APT.:** Cocoa Bch., Fla. nr Kennedy Space Ctr., nr. bch., 1 hr. Diney World, $100/wk. 305-671-7692.

**APT.:** Mineola, 1 bdrm., fully air cond., dishwash., huge closets, xtras, $259/mo. 248-3664, after 6.

**APT.:** ½ mi. L.I.E., 5 rm., new. fully carpet., access. to pool, playground, July occup., $260/mo. 731-3083.

**TENT TRLR.:** Coleman hdtp., slps. 6, all access., $11/day. 751-1256.

**HOUSE:** Massapequa/Nassau Shores waterfront, 3 bdrm. exp. ranch, firepl., 901. ft. dock space, $425/mo., option to buy, avail. 7/1. 541-2076.

## Wanted

**BLACKSMITH'S ANVIL:** 100 lbs. or more. 864-6294.

**ROOMMATE:** Fem. Grummanite to share apt. w/2-3 girls. Linda Spahn, Ext. 9100.

**APT.:** Or sma. house, 3 or 4 rms., Nassau county, yg. bus. couple, 6/1 or 7/1. 938-3943.

**TYPEWRITER TBL.:** Used, hvy. dty. on casters. 667-5471.

**TRAVEL BK.:** '71 Fielding's Travel Europe. TE 4-6722.

**ELEC. TACH.:** For 55 hp, 3 cyl. Johnson motor. Bill Eliezer, Ext. 84634.

**HOUSE:** Vic. Waldorf Sch., Adelphi Univer., split or colonial pref. 333-5223.

**WHLS.:** 14 in. for '69 Barracuda. 921-8253.

**SLOOP:** O'Day Mariner ctrbd. w/trlr. & motor, old. mod. pref. 261-1186.

**POOL:** 18x4, in wall skimmer, cov., filt., etc. W. McLaughlin, Ext. 1552.

**RABBIT CAGE:** For outside w/legs (off ground) or indr. cage. 799-5182.

**APT.:** Nassau county, sma., grnd. fl., couple, pvt. house w/yd. access., walk to markets essent. 333-8689.

## For Adoption

**DOGS:** 1, 3 yr. beagle, mix, spay. fem.; 1, 2 yr. male, gd. w/child. PE 1-1216.

**ST. BERNARD:** 9 mo., fem. 928-0183.

## Car Pool

**BKLYN.:** Belt Pkwy. to Plt. 1, 2, 3, & whse areas, 7:30-4 p.m. 212 CL 3-8525.

**DEER PK.:** N. Babylon, Dix Hills to Bethpage complex. 667-0234.

## Swap

**MOTOR:** 18 hp Evinrude outbd., for 5 or 7.5 hp outbd. 212 GR 1-9664.

## Ride Wanted

**W. BABYLON:** A&S shop ctr. to Plt. 35, Navy Dept. Donna Carr, Ext. 9831.

**LONG BCH.:** From Plt. 2. GE 2-3311.

**HUNT. STA.:** Lenox Rd. vic. to Plt. 5, 8-4:30 p.m., start. 6/6. Jo Ann Sciacchitano, Ext. 9212.

**PLT. 1:** To Lindenhurst, 4:30-5 p.m., 1 way. 893-1886.

## For Sale

**HOUSE:** N. Merrick, 4 bdrm. cust., 2 bath, formal din. rm., eat-in-kit., 16x24 den, firepl., 3 zone ohw heat, 2½ car gar., fin. bsmt., 60x125, $38,000. 785-2387, after 6 p.m.

**HOUSE:** ¼ acre, hvy wood., 5 bdrm., 2 car gar, din. rm., den w/firepl., bch. rgts., dead end st., $59,300. 751-2069.

**HOUSE:** Sayville, 4 rm., 2 bdrm., col. decor., fenc. plot, 57x173, gar., exp. poss., treed, nr. sch., $457 tax., firepl., $24,500. 589-5580.

**SECT.:** 3 pc. French prov., cust. 212 587-0966.

**VW:** '70, yel., blk. int., AM/FM, bumper guards, 4-spd. 473-6649.

**TRIUMPH:** '69 TR6, AM/FM, radial tires, $1,750. 588-0022.

# at your SERVICE

**This is a free service to Grumman personnel for non-commercial advertisements, accepted on a first-come, first-served basis. Classified advertisements are carried in PLANE NEWS only on the basis that everyone replying to such advertising will receive fair and equal consideration regardless of their race, creed, color, or national origin.**
**Type or print ad on form available at Employees Service and Engineering counters, and send via interplant mail to PLANE NEWS, Plant 5, Bethpage. List home phone (with area code if outside Nassau or Suffolk). Limit: one ad per person per issue. No item under $10, no firearms or ammunition.**

**HOUSE:** Commack, 4 bdrm. col., 1/3 acre, lrg. kit., panel. den w/firepl., formal din. rm., w-d in liv. rm., drapes, slate foyer, 6 appli., patio, fenc., xtras, $41,990. Victor Chianese, Ext. 1746.

**HOUSE:** Stony Brook Strathmore S sect., 4 bdrm. cape, 1½ bath, 2 car gar., over ½ acre., wood., patio, s-s, carpet., 4 appli., $34,000. 751-2509.

**HOUSE:** Plainview, 3 bdrm. cape, gar., fin. bsmt., fenc., rear yd. WE 1-6436.

**HOUSE:** Westbury Hills, 3 bdrm. brick split, att. 2 car gar., fin. bsmt., 1/3 acre, lrg. liv. rm., din. rm., fam. rm., eat-in-kit., patio & slid. patio drs., s-s, 3 air cond., ohw heat, hi take-over mtge. @ 6%, $42,500. 333-5223.

**HOUSE:** N. Babylon, 4 yr. ranch, 1½ bath, w-w in liv. & din. rm., fenc. yd., ¼ acre, xtras, $35,990. 587-7607.

**HOUSE:** Commack, 3 bdrm., din. rm., eat-in-kit., s-s, gar., fenc. ¼ acre, fin. bsmt., poss. 4 bdrm., carpet. & appli., nr. all pkwys, xtras, 5¼% mtge take-over avail., ask. $34,990. 543-4116.

**HOUSE:** Farmingdale, 7 rm. brick cape, scrn. patio, gar., fin. bsmt., lndry, 2 tubs, appli., new s-s, tree lined st., sch. dist. 22. 249-0922.

**HOUSE:** Smithtown, 6 rm., formal din. rm., eat-in-kit., cov. patio, w-w, mirrors, s-s, cov. patio, xtras, ask. $32,990. AN 5-6809.

**HOUSE:** Centereach, 3 bdrm. split, lrg. liv. rm., din. rm., eat-in-kit., panel. den, mud rm., bsmt., s-s, w-w, ohw, 75x125, $26,500. JU 8-2590.

**FURN.:** Ital. prov. couch & chr., sol. blue uphol., wood frame, $200. 724-0743.

**DIN. RM. SET:** Gl. front china cab., 6 chrs., buffet w/hvy. prot. gl. tp., tbl. w/2 leaves, pads, gl. tp. for tbl., $450. 799-6941, after 6 p.m.

**FURN.:** Ethan Allen trad. maple hutch, 6½x6½, $550; 2, 5 ft. love seats, hi-bk. w/1 match. ottoman, $425/pr. MY 2-6533.

**FURN.:** Vinyl cov. recliner, couch & chr., desk, stereo cab., lamps, bd. hdbd., reason. OV 1-4249.

**TBL.:** 42 in. round oak ped., antique, approx. 75 yr., 2 leaves, comp. refin., $150. 221-3512.

**KIT. TBL.:** Round wrought iron tbl., 4 chrs., reason. 667-8518.

**MISC.:** Sears Lady Kenmore port. dishwash., $15; 19 in. B&W Magnavox TV, consolette, $20. Henry Tarfman, Ext. 86226.

**GAS RANGE:** 36 in. Caloric, 4 burner, oven, broiler, clock, lite, stor. comp., wh., nds. new thermo., $25. WE 5-2821.

## For Sale

**MISC.:** Auto. wash., desk, dresser w/mirror, early 1900, glassware, house hold items. WE 1-2567.

**MISC.:** Auto. wash., Sears, mod. 600, 4 cyc., 3 yr., $75. IV 5-9772.

**REFRIG.:** '50 G.E. w/freezer comp., $20. 796-8288.

**FREEZER:** Admiral, 6 mo., $100. 221-4280, after 4 p.m.

**FREEZER:** 15 cu. ft. Sears, frostless, 3 yr., $135. 273-6064.

**REFRIG./FREEZER:** Tp., btm. dr., 15 cu. ft., wh. Westinghouse, $80. 666-5285, after 5 p.m.

**BABY FURN.:** Lullaby wh. prov., canopy crib & match. dbl. dress., xtras, Bilt-rite Pk. Ave. navy blue coach carr., make reason offer. 669-9022.

**MISC.:** Wood rung playpen; car bed; wh. crib; lrg. Eng. coach carr., blue, $10; baby scale. 543-5365.

**PUPPIES:** Germ. short hair, AKC, papers, champ line, 4-10-72, fem., $125. 234-1281.

**PUPPIES:** Pt. gold retriever, male & fem., wh. to gold., 6 wk. AN 1-8727.

**PUPPIES:** Boxer, fawn, champ sired, gd. disp., docked, reason. OV 1-7381.

**PUPPIES:** Boston terrier, AKC reg., males, $75 to $100. 277-3768.

**ENGAGE. RING:** Emerald cut diam., $400. AN 6-1739.

**PUPPIES:** Germ. shep., worm., exc. temp., $40. 265-4991.

**PUPPIES:** Toy poodles, pomeranian & pugs, $75-$200. 732-0354.

**FISH TANK:** 30 gal., all access. incl. std., lrg. dynaflow pump, xtras, $50. 667-9489.

**FISH TANKS:** 10, 3½, 2½ gal., pump, filt., 2 reflect., wrought iron std., misc., $20. 212 648-4850, evgs.

**AQUARIUM:** Comp. w/std., 20 gal. tank, nat'l. rock bkground & fish, $40. 935-1280.

**AIR MATT.:** Hodgeman's twin turf., 25x75, $18/pr. HA 3-2644.

**PIN BALL MACH.:** Coin oper. elec., $250. Ted Pupilla, Ext. 3066.

**DRAPES:** 6 pr. cust., gray-blue w/tie bks. & valances, auth. Fed. per. styling, milium lined, linen/cotton/silk, under shears incl., 2 yr., $195. AN 5-9508.

**MISC.:** Everest & Jennings Hlwd. mod. whl. chair w/ft. & leg rests, chr-hi. mtl. tbl., $125; Canadian crutch, adj., $10. 249-0856.

**WED. GOWN:** & veil, sz. 7, $150. Pat Bernzott, Ext. 9570.

**SCUBA TANK:** U.S. divers, 80.1 cu. ft. cap. w/reserve, Jacques Cousteau conshelf 6 reg. sgl. hose, wgt. belt & comp., depth gauge, $70; comp. wetsuit, male - fem., 120-140 lbs., $40. HA 3-2611.

**TYPEWRITER:** Port. w/case, Golden Shield Diplomat, Smith Corona, $50. WA 1-5178.

**GAR. SALE:** Var. of household items, toys, etc., Sat., 5/27. GE 3-5149.

**PACHYSANDRA:** Grnd. cov. root, cut., any quantity. 731-6105.

**LGT. FIX.:** Wag. whl. style, maple. 4 lgts. w/copper trim, $20. 731-4609.

**OUTDR. GRILL:** New Charmglow AMK 83, gas fired barbecue, mtd. on sturdy 2 whl. frm., self clean., $80. 212 648-4850, evgs.

**GUITAR:** Amp & spkr. sys., 100w peak, Univox, 2, 12 in. spkrs. in ¾ ply cab., $150. 289-5492.

**MISC.:** Clarinet & case, comp. o'haul., $60; 15x48 round pool, all equip., $75. Irv Coffilll, Ext. 84507.

**FARFISA ORGAN:** '71, instruction bks., $395. 488-3495, evgs.

**AMP.:** Univox, 3 inputs, vol., tone, trem., 12 in. Jensen spkr., $30. OV 1-1247.

**MISC.:** Masterwork stereo, ask. $45; 14 ft. Daysailer, fbgl., comp. w/dacron sails, new trlr., access., seats 4-5, ask. $550. or best offer. 423-4426.

## For Sale

**CB RADIO:** Allied realistic mini 23, 5 watts w/base load. roof mt. ant., $75. PY 8-0802.

**MISC.:** Lafayette tape record, any sz. reel up to 7 in., mike, 2 packs for spkrs., $75; child, viewmaster by Sawyer, 1 stereo lgt. hand viewer, 1 reg. hand viewer, 14, 3 reel present., 21 sgl. reel present., elec. proj. for group view., $25. 694-4281, after 6 p.m.

**MISC.:** Case of gas & oil conditioner for car, trk., or mach. Tavel Clavin, Ext. 7571.

**MIKE:** Shure, mod, 55SW Unidyne w/cable & Atlas std., $30. WE 5-2865.

**MISC.:** 2 surf rods, 11 ft.; ping pong tbl., 2 pc., ¾ in. thick; golf clubs, 4 woods, 9 irons, Sam Snead Blue Ridge; red seat belts; sink rim, stain. steel, 21x24, new; car tp. carrier w/belts, reason. 249-0922.

**ENGAGE. RING:** Round dia., 2 taper. baguettes, plat. set., 1½ carats, $850. 691-7017.

**PWR. TOOLS:** Delta Homecraft, band saw w/std., motor & fused disc., $50; jig saw w/motor & fused disc., $75, xtra blades for both. PY 6-8710.

**WIG:** Shag, lg. lngth., blk.-brown dynel, never spray., $25. LI 1-9197, after 6 p.m.

**SKIS:** Hart Camaro, 190cm, reason. LI 1-9197, after 5 p.m.

**CAMPER:** '71 VW, pop tp., 17,000 mi., $3,495. JU 7-2360.

**TRLR:** '71 Layton, 22 ft., slps. 6, comp. bath w/shower, dbl. sink, oven & 3 burner stove, w/Puritan hood, 2 dinettes, tandem whls., elec. bks., Reese hitch, $3,200. MY 4-6168.

**TRAVEL TRLR:** 21 ft. tandem axle, slps. 8, self cont., batt./charger, compressor, range, oven, dbl. sink, shower, 30 lb. L.P. bottles, awn. & scrn. rm., stab. jacks, xtras, ask. $2,700. 751-0279.

**TRAVEL TRLR.:** '67 Shasta, 12v/115v, slps. 6, 75 lb. icebox, 3 burner stove, w/oven, brks., Reese hitch, $975. 473-7295.

**TRAVEL TRLR.:** '70, 19 ft. Coachman, self-cont., slps. 8, awn., spare tire, batt., gas/elec. refrig., heat., bath w/shower, xtras, $2,900. AR 1-6735.

**CAMPMOBILE:** '71 VW, 11,000 mi., comp. outfit. w/sink, icebox, pop-tp., slps. 2 adults & 3 child., xtras, $3,450. AN 1-3570.

**CAMPER:** '65 Ford Travelwagon, fact. van conv. w/ collap. metal tp., slps 5, stove, icebox, sink, conv. dinette, 240 c.i. truck eng., hvy. dty. clutch, bks., batt., altern. & cool. sys., orig. owner, gar., $1,700. MY 2-2812.

**TRAILER HITCH:** For '65 Chevy w/hardware, $10. C. Smith, Ext. 86633.

**UTIL. TRLR.:** Hvy. dty., 4x6x24, all metal, new tires, lgts., canv., $150. 265-2774.

**VW:** '68, auto., sed., new bks., transmission, & tires, $950. WE 5-6422.

**VW:** '65, low mi., new tires, R&H, snows & rims, $750. 293-2822.

**PLYMOUTH:** '70, 'Cuda 340, 17,000 mi., auto., pwr. steer., air cond., slap-stick w/cons., radio w/rear spkr., Monroe hvy. dty load level., spr. shocks, Keystone chrome slotted whls. w/H70x15 tires, $2,650. 473-7527.

**PLYMOUTH:** '65 Sprts. Fury, 426 c.i., 8 cyl., auto., pwr. steer., $675. JU 1-7780.

**PLYMOUTH:** '66, 9 pass. wag., pwr. steer. & bks., auto., 318 V-8, $550. JU 1-3463.

**FORD:** '70 Mach I, wh., AM/FM stereo, tape deck, pwr. steer. & bks., air cond., $2,300. GE 3-5479.

**STA. WAG.:** '66 Ford Fairlane V-8, w/o'drive, radio, pwr. rear wind., 2 way tailgate, new batt. & carb., xtra mtd. snows, driver's dr. nds. replacing, $550. 271-9097.

**FORD:** '67 Galaxie 500 conv., 289 c.i., pwr. steer., auto., tape deck, nde tp., & rear ogl. wind., $900. 587-7111.

**STA. WAG.:** '58 Jeep, 4-whl. drive, 4 new tires, & batt., reuphol. seats, snowplow, $400. 671-4083.

**SAAB:** '70, 96, V-4, radial tires, AM/FM, $1,225. WE 5-2865.

**STA. WAG.:** '65 Chevy, 2 new snows, Belaire, V-8, R&H, 9 pass., $700. 587-0937.

**OLDSMOBILE:** '69 Cutlass Supreme, 34,000 mi., 8 cyl., pwr. steer. & bks., 4-dr. sed., vinyl tp., air cond., $1,800. 727-7091.

**CADILLAC:** '64, 4-dr., grn., fully pwrd., air cond., ask. $750. PR 5-9883.

**CADILLAC:** '68 Sed. de Ville, maroon, air cond., AM/FM stereo, w/w, pwr. steer. & bks., & wind., 6-way posi., twilgt. sentinel, $3,375. 914 TE 4-6722, evgs.

**WAG.:** '62 Chevy II, 4-dr., R&H, auto., new motor & transmission, $375.; wind .fan for dbl. hung wind., thermo ctrl., $25. Louis Furino, Ext. 2394.

## For Sale

**BOAT:** 18 ft. fbgl., ctrls., inst., cov., seats 7, '67, 60 hp Johnson, elec. start, Little Dude trlr., $1,050; dinghy, oars, 100 lb. mushroom moor. equip., $120. OV 1-3641.

**BOAT:** 9 ft. Revelcraft, hdtp., comp. canv. curt., new uphol., 1, 6 gal. gas tank, cradle, no motor, $350. HA 3-5399.

**SAILBOAT:** 24x18xx2.6 Daysailer, fast ballast, keel/ctr. boarder, comp. rebit. & wood. down in '68, main, jib, spinnaker, wet stored, 5 hp Seagull, $1,250. 669-1715.

**BOAT:** 18 ft. Cruisers, Inc., lapstrake, 75 hp all elec. Johnson, Navy tp., cockpit curt., fully equip., trlr., $1,150. MO 9-9013, after 5 p.m.

**BOAT:** '48, 33 ft. Owens sed. twin, screw, fly bridge, fresh water cool., radio, slps. 5, xtras, $4,500. 799-0978.

**MISC.:** 100 lb. anchor, 40 ft. 5/16 galvanized chain, & buoy, all alum., used 1 season, $75. WE 1-2339.

**HOUSE:** Massapequa, cust. ranch, 3 bdrm. up w/ wood burn. brick firepl., 2 add. bdrm. apt. down w/sep. ent., bath, & kit., avail. for rent., all brick, 100x100 fully lndscpd., tool shed, 6% mtge. for take over, $36,000. 799-8788.

**HOUSE:** Huntington, 8 rm. col., 4 bdrm., 1½ bath, fam. rm., formal din. rm., carpet., s-s, bsmt., gar., patio, 24 ft. above-grnd. pool, fenc. bk. yd., nr. sch., church, & shops, xtras, $41,990. 271-2762.

**HOUSE:** Hicksville, 7 rm. split, 1½ bath, 3 bdrm., playrm., att. gar., bsmt., w-w, air cond., oil heat, all elec. appli., 75x100, 24 ft. above-grnd. pool, xtras, $39,500. WE 5-9614, after 5 p.m.

**CO-OP:** Flushing, 2 bdrm., 2 bath, terrace, air cond., carpet., walk to subway, $256 maint. incl. util., $14,500. 212 HI 5-1079, evgs.

**HOUSE:** Westbury, East Meadow sch. dist., 4 bdrm., 2 comp. wood panel., lrg. closets, 1½ bath, firepl. & w-w in. liv. rm., lrg. beam. ceil. kit. w/bay wind., new cab., sep. 8x12 eat. area, gunite kidney shaped swim. pool, nr. all pkwys & RR. 735-1227.

**HOUSE:** Farmingdale, 3 bdrm. ranch, lrg. eat-in-kit., cath, ceil. liv. rm., att. gar., carpet, air cond., fenc., full bsmt., 60x100, 3 appli. CH 9-2580, after 5 p.m.

**HOUSE:** West Islip, 4 bdrm. hi-ranch, 100x100 fenc., 1½ bath, oil heat, 2 car gar., nr. shop. ctr. & bch., 12 mi. Grumman, xtras, $38,000. 587-5541, after 6 p.m.

**HOUSE:** Stony Brook, 3 bdrm. col., 2½ bath, 1/3 acre, fenc., patio, all major appli., 4 air cond. units, $38,400. 751-7377.

**HOUSE:** Commack, 3 bdrm. col., din. rm., den, 1½ bath, full fin. bsmt. w/gar. ent., xtras, $35,500. 864-6457.

**HOUSE:** W. Sayville, 3 bdrm. hi-ranch, fully furn., pool, playrm., 2 car gar., o.h.w. baseboard, w-w, 8/1 occup., $33,000. LT 9-3762, after 6 p.m.

**HOUSE:** E. Northport, 4 bdrm. cape, 2 bath, beam. ceil. liv. rm. & w-w, above-grnd. pool, 2 car gar. & breezeway, lndscpd., 4 appli., $34,900. AN 1-2391.

**DIN. RM. SET:** 6 ft. trestle pine tbl., opens to 8 ft., 6 chrs., incl. cust. pads, 6 mo., $550. 541-2076.

# OBITUARIES

**Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.**

ROBERT F. MONTROSE of Flight Development/Operations, Plant 7, died April 29 at the age of 40. He had been with Grumamn eight years, and he lived at 245 Northern Blvd., St. James.

ANTONIO ROSSI died April 29 at the age of 63. He worked in Facilities Maintenance, Plant 3, and his home was at 76 East Barclay St., Hicksville. He had been with the Company since 1966.

JAMES M. HORSHINSKI died May 7 He was 48 years old and had been with Grumman since 1944. He worked in Honeycomb Preparation, Plant 3, and lived at 20 Meacham Ave., Elmont.

JAMES R. KNAPP of Production Release & Analysis, Plant 2, died May 7 at thc age of 53. He had been with the Company 26 years. His home was at 40 Nassau Ave., Plainview.

## For Sale

**DIN. RM. SET:** Gl. front china cab., buffet, tbl. w/ 2 leaves, pads, 6 chrs., hvy. gl. protect. tops for buffet & tbl., $450. 799-6941.

**KIT. SET:** Wrought iron, wh./gold, 6 mo., ask. $125. 585-5392.

**FREEZER:** 11.5 cu. ft. upright Coldspot, $100. 265-9296.

**RANGE:** Kenmore counter top., copper tone, 1 yr., $40. 878-4203.

**WASH. & DRY:** Sears, $150/both. 888-8753.

**TV:** 23 in. B&W Zenith cons., mod. wal cab., remote ctrl., $75. 586-0757.

**TV:** 21 in. RCA color, cab., $200. FR 9-7743, after 6 p.m.

**MISC.:** Port. elec. dry., suit. for apt., new, $60; G.E. air cool., $50; elec. rotisserie, all attach., $35; sma. elec. broiler, $10. 938-8731.

**MISC.:** Simmons box spr., twin sz., $10; Kool-vent alum. awn., grn. & wh., 56x48x18, $45. HA 7-0052.

**DODGE:** '66 Polara, 9 pas. wag. pwr. ster. & disc bks., $850. 585-8641.

**DODGE:** '65 Dart GT, V-8, 8 tires, 2 snows, $375. FO 8-0650.

**TRLR.:** '68 Apache Ramada camper, slps. 8, stove, icebox, dinette, 20 lb. gas tank, spare tire, bumper, plastic wind.. awn., xtras, $1,200. 589-9009.

**HONDA:** '71 Trail 70 mini-bike, 3-spd., w/speedometer & horn, 1,400 mi., gold, $250. MO 7-4832.

**TRANSMISSION:** GM turbo hydra, Hurst linkage, $100. TU 8-3114.

**ENG.:** '67 VW, 53 hp, comp. w/gen. & muff., comp. rebit. & insta., $175. 273-6239.

**HONDA:** '71 Trail bike, mod. CT-70, 72cc, 700 mi., $250. MA 3-2081, after 5 p.m.

**MISC.:** Snow tires on 14 in. Ford rims, $20; 36x36 shower stall, $15; 2, 32 & 38 in fbgl. awn., $10. 271-9097.

**HYDROPLANE:** 8 ft. wood constr., new paint, 6 hp Clinton, rdy. for water, ask. $150. 367-4107.

**BOAT TRLR.:** 650 lb. cap., boats to 15 ft., used 1 season, $150. 543-3221.

**BICYCLE:** 20 in. boy's, $10. CH 9-4007.

**BIKES:** 2, 20 in. w/train. whls., $10/both. 757-0438.

**BICYCLE:** Boy's Schwinn, 3-spd., tour. racer, 20 in. frame, 26 in. whls., gold, ask. $50. 433-6527.

**HOUSE:** Islip, 4 bdrm., hi- ranch, din. rm., rec. rm. w/full wall firepl., eat-in-kit., patio w/brick wall, 2 car gar., 1½ bath, s-s, w-w, dishwash., $34,500. 277-3768.

**HOUSE:** S. Bellmore, 4 bdrm., exp. ranch, formal din. rm., lrg. den, eat-in-kit., encl. porch, 2 zone heat, 70x150 fenc. lot, all appli., s-s, $35,000. 826-3414.

**HOUSE:** 7 rm. ranch, 3 bdrm., 1½ bath, 2 car gar., s-s, w-w, din. rm., kit. & den w/brick firepl., full bsmt. w/fin. playrm., cyc. fenc. encl. plot, 103x102, 4 appli., ask. $43,000. 935-3283, after 6 p.m.

**PROPERTY:** E. Patchogue. Bellport, 2 acres, 1 blk. marina, $13,500. GR 5-1522.

**PROPERTY:** Clinton County, N. Y., 29.44 acres, on N. Y. 189, wood., lvl., hard surface rd. front., ½ mi. S. Churubosco (town), $4,300. 732-5954, after 6 p.m.

**PROPERTY:** Ridge. N. Y., 1.2 acres, residential. 543-2941 afts.

**FURN.:** Wood wall cab. w/slid. drs., $10; fl. lamp, ceil. reflect. on base bronze std., $12. 643-7588.

**PATIO FURN.:** 3 pc. alum. glider, match. chr., coffee tbl., $65. 643-7588.

**DIN. RM. SET:** Blond wood tbl., 4 chrs., china cab., $75. PE 1-2313.

**PATIO FURN.:** Redwood. LT 9-5602.

**TV:** 23 in. B&W G.E., $25; Philco, 5,000 BTU air cond.. $100. MO 9-4937, after 6 p.m.

**TBL.:** 5 ft. 60 in. round Calif. redwood., $25. PY 6-9634.

**MISC.:** 13 wood kit. cab. w/5 dwrs., used 6 mo., $225; tressel tbl., antiques, pict. frames piano, lamps. iron bd., 16 ft. runabout boat, '66 Chevy. 281-2855.

**MISC.:** New port. typewriter; 9x12 velvet blue rug; fbgl. drapes; early Amer. TV std.; 2 Danish mod. chrs.; round mod. coffee tbl. 541-2076.

**RID. MOWER:** 26 in., 6 hp Sears, new eng., 5 cut. hgt. positions, $195. 277-3140.

**LAWNMOWER:** 21 in. reel, Briggs & Stratton, 4 cyc., self prop., $20; 24 in. girl's Schwinn bike, $15. OV 1-8134.

**CYCLONE FENCE:** Approx. 150 ft. 4 ft. hi. w/rail., posts, brackets, etc., $125. 785-3519.

**POOL:** Doughboy aqualine 21x4, 13 element HPE filt., cov., ladder, skimmer, vac. PY 8-6382.

## For Sale

**PUPPIES:** Boston terrier, male, AKC reg., born 2/26, $75 & up. 277-3768.

**VW:** '67 Beetle w/'68 eng., new master cyl., & muff., best offer over $600. 587-1267, after 6.

**WAGON:** '68 Opel, new clutch, red w/roof rack. 928-3745.

**CHEVROLET:** '63 Super Sport, bkt. seats, cons., bdy. dam., best offer. 884-4181, after 4:30.

**COUNTRY WAG.:** '63 Ford, V-8, ask. $225. 334-3945.

**PANEL TRUCK:** '59 Dodge ½ ton, R&H, new gen. & volt. reg., $175. 273-7998.

**MOTOR SCOOTER:** '59 Lambretta, lgts., mirror, etc., inspected, $85. 676-4378, after 6 p.m.

**BOAT:** 15 ft. wood w/trlr. & access., $175. 585-8359.

**SPORT FISHERMAN:** 30 ft. Pacemaker, fully instr. FB, S/S, eng. sync., elec. chlor. hd., depth find., RDF, fume detectors, press.. water, propane gas range & more, slps. 4. IV 6-4452.

**SAILBOAT:** 18 ft. w/cab., inbd., hd., o'haul. in '70, trlr., $1,495. 543-0044, after 6 p.m.

**HOUSEBOAT:** '71, 24 ft. fbgl., 2 burner stove, sink, blt-in icebox, port. hd., '71, 120 hp Chrysler outbd., low hrs. w/wo 4,000 lb. cap. tandem whl. trlr. w/hyd. bks. 666-5057, evgs.

**HOUSE:** Commack, 4 bdrm. col., 1/3 acre, lrg. kit., panel. den w/firepl., formal din. rm., w-w in liv. rm., drapes, slate foyer, 6 appli., patio, fenc., xtras, $41,990. 543-3784.

**HOUSE:** Opp. Plt. 35, 3 bdrm. ranch, mirror, din. rm., nite club fin. bsmt., Fla. rm., w-w, 75x180 fully lndscpd., $45,000. OV 1-0519.

**MISC.:** 3 pc. maple set, tbls., wash., lamps, elec. appli., others. 234-9201.

**CARR.:** Biltrite coach w/matt., $25. 6.95x14 tire w/rim, $15. 543-1565.

**MISC.:** Child's Blazon hobby horse, $10; 2 wood. playpens w/pads, $10/ea.; car bd., train. chr., col. metal doll house, others. 724-0573.

**WORLD BOOK:** '72 Childcraft, (World Book), 15 vol., $75. Neil Marcus, Ext. 86517.

**HI-FI CAB.:** Cust., wal., accom. for spkr., tape record., receiver & turntbl., $100. 585-3475, after 6 p.m.

**SPKR. SYS.:** 2, Fisher 3-way. mod. KS-1A, $40/ea. 585-3475.

**GOLF CLUBS:** Woods, 1, 3, 4, & 5, Spaulding tp. of line, elite mod., D-3 swing wgt. lgt. wgt. steel shaft, stiff, $65. PY 6-9046.

**MUSTANG:** '69 Fastback, 4-spd. fl. shift, tach, 351 eng., wide ovals, snows, pwr. steer., grn., blk., int., one owner, $1,600. 261-1821, after 6 p.m.

**MUSTANG:** '68 Fastback, 302, 4-spd., blue w/blk. int., mags, new tires & batt., xtras, $1,400, or make offer. 567-2242.

**PONTIAC:** '67 Catalina, 2-dr. hdtp., wh. w/blk. vinyl tp., pwr. steer. & bks., 8 cyl., $950. HA 3-6151.

**PONTIAC:** '68 GTO, 3-spd. manual fl. shift, air cond., pwr. steer., limit, slip diff., AM/FM, elec. ant., HD susp., r/c trunk release & mirror, instr. cluster w/tach, blk. vinyl tp., cons., 28,000 mi., $1,800. 333-6034.

**PONTIAC:** '67 Firebird, 326, V-8, 25,000 mi., auto., pwr. steer. & bks., one owner, nds. bdy. work, best offer. 799-4996.

**GTO:** '60, 400 c.i., 350 hp, 4-spd. posi rear, rally whls., radio, pwr. steer. & bks., grn. w/wh. vinyl roof, $2,295. 691-5453.

**RAMBLER:** '65 Classic V-8 sta. wag., 6, 15 in. tires &rims, radio, roof rack, $325. or best offer. 667-0233.

**RAMBLER:** '63, Classic, 4-dr. sed., new clutch, $75. IV 6-4930.

**WAG.:** '68 Chevy Malibu, V-8, full pwr., aid cond., $1,375. 822-4769.

**CHEVY II:** '62, recond. bdy., rebit. motor, inspected, 2-dr., 6 cyl., $350. 271-5282.

**CHEVY:** '63, 6 cyl., Super Sport, $200. 277-1029.

**CORVETTE:** '69, 427 CID, 390 hp, 4-spd., posi rear, 2 tps., AM/FM, 8 track tape, blk. in & out & vinyl hdtp., wh. ltrs. G-60415, Goodyear poly tires, $3,650. WE 1-3088.

**BUICK:** '67 Electra 225, V-8, 4-dr. hdtp., all pwr., 48,000 mi., $975. FO 8-5722.

**HORNET:** '70, 2-dr. sed., auto., R&H, ask. $1,450. 265-7852, evgs.

**CADILLAC:** '65 hdtp., 2-dr., wh., 2 mtd. snows, all pwr. incl. pwr. locks, tilt whl., AM/FM, burglar alarm, $850. 781-9486.

**COTTAGE:** Silver Lake front, Hancock, N.Y., 3 rm., ½ bath, scrn. porches, fully furn., $10,500; 16 ft. Glasspar boat, 75 hp Evinrude, trlr., cov., xtras, used fresh water only, $1,495. 433-7976.

## For Sale

**HOUSE:** Carle Pl. sch. dist., 4 bdrm., 2 bath, mod. kit., new roof & baseboard heat., att. gar., all stone, $33,990. Ann Burnley, Ext. 87520.

**HOUSE:** Huntington sch. dist. 13, 3 bdrm. cust. split, liv. rm. w/firepl., din. rm. w/beam. ceil., EIK, 1½ bath, w-w, lndry., heat. gar., panel. bsmt., playrm., work rm., lrg. col. brick patio w/awn., rear cedar fence, 2 cust. tool sheds, $35,000. 271-6233.

**HOUSE:** 4 bdrm. Levitt ranch, cov. patio, 2 zone heat, carpet., appli., s-s, fenc., low tax, $30,990. PE 1-4918.

**HOUSE:** Oakdale, 7 rm. split., 3 bdrm., 1½ bath, lrg. den, firepl., all appli., w-w, wet bar, gar., ½ acre, $32,000. LT 9-3943.

**HOUSE:** Oakdale, waterfront, 100x100, on sheltered lagoon, 3 bdrm., fam. rm., liv. & din. rm., oil heat, carpet., sundeck, xtras, $49,990. 589-6839.

**HOUSE:** Moriches, waterfront, 76x250, 5 yr., 3 bdrm. ranch, 2 ful bath, att. heat. gar., firepl., bch. rgts., $35,000. 878-2262.

**APT. HOUSE:** Bklyn., mod. 6 story, $73,000, 5¼% mtge. 212 375-3566.

**HOUSE:** N. Babylon, 3 bdrm. ranch-cape, w-w, fenc., bsmt., walk to stores & sch., nr. So. State Pkwy, $26,500. JU 6-4951.

**HOUSE:** Seaford, ext. 7 rm. cape, 4 bdrm., lrg. new kit., din. rm., w-w, fin. bsmt., jalousie patio, $37,500. 735-8622.

**HOUSE:** Levitt ranch, 3 bdrm., firepl., o'sz. gar., nr. shop. & transport., newly decor., $28,500. 734-7344.

**HOUSE:** Bethpage, 3 bdrm. ranch, part. fin. bsmt., eat-in-kit., gar., carpet., $34,900. 433-6119.

**HOUSE:** Bellerose, Queens; liv. & din. rm. furniture, Hammond M3 organ, 2 desks, 78 rpm records, chrs., lamps. 249-1706, after 5:15 p.m.

**HOUSE:** Islip, 4 bdrm., 1½ bath. country kit., gar., pool, 75x150, low tax. 234-0962.

**HOUSE:** Selden, 3 bdrm. ranch, 1 fl., eat-in-kit. (10x18), 23 ft. liv. rm. & den, 4 appli., w-w, approx. 75x120, fenc., att. gar., $27,500. 928-1173.

**HOUSE:** W. Farmingdale, 3 bdrm. lrg. brick split, 2½ bath, panel. den, din. rm., fully air cond. MY 4-3742, after 5:30 p.m.

**HOUSE:** Hicksville, fully dormered 4 bdrm., ctr. hall Cape, att. o'sz. gar., din. rm., breakfast rm. off. comp. renovated kit., dishwash. & wood grain. formica cab., fin. bsmt. w/wet bar, bath, lndry., shop, etc., appli., prof. lndscpd., new precast cesspool, sep. drywell, new 550 oil tank in grnd., OHW heat, low tax, w-w, 10 min. Grumman, $42,500. WE 8-2390.

**HOUSEBOAT:** '70, 24 ft. Rivera hydrodyne fbgl. & alum., 120 hp Mercruiser I/O, 150 hrs., slps. 4, 2 burner gas range, gas/elec. refrig., hd., bilge pump, blower, curt., pwr. lift, '71 trlr., tandem cert. 5,000 lb. cap., lgts., winch & bks., $6,800. 221-6446, after 7 p.m.

**PROPERTY:** Hemlock Farms, Pa., 34,000 sq. ft. ctr. of old. develop. sect. 731-3271.

**PROPERTY:** So. Great River, over ¾ acre, $14,500. JU 1-3584, after 6 p.m.

**PROPERTY:** Hunter Lake, Liberty, N.Y., 135x350, water line on property, elec. & phone lines on rd., all lake rgts. incl. w/deed. 587-7941, after 6 p.m.

**VACATION PROPERTY:** Hemlock Farms, Pa., ¾ acre on cul-de-sac, $7,500, will finance. 212 631-9762.


plane GRUMMAN news

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# Teague sees Shuttle as 'new approach to space operations'

The persistent argument as to which is better—manned or unmanned space missions—simply isn't relevant anymore, according to Rep. Olin Teague of Texas, chairman of the House Manned Space Flight subcommittee. Says Teague:

" . . . advancing technology has negated it by providing an entirely new approach to space operations which combines the advantages of man in the cycle with a degree of economy hitherto unobtainable. It is the reusable Space Shuttle, which makes possible manned delivery, repair, and retrieval of unmanned satellites and which alternatively, can serve as a manned laboratory in which investigators may conduct those experiments or operations best managed by manned monitorship."

Writing in the magazine "Aerospace," Representative Teague dealt with the gamut of issues concerning the Space Shuttle, such as delivery and payload economy, flexibility, routing access to space, stimulus to space benefits, and manned space flight continuity. He said that, if Congress approves, " . . . flight testing will begin in 1976 and the Shuttle can be available for operational use in 1979."

### Payload versatility

For some, there is a question of the need for a Shuttle, or its usefulness; and that, largely, comes down to what the Orbiter (the "payload" section of the Shuttle) can do. As Representative Teague sees it, the Orbiter will " . . . permit delivery of any type of civil payload currently contemplated, including general-purpose scientific spacecraft, special-purpose observatories, interplanetary probes, and communications, weather, earth resources, geodetic, navigational, and air-traffic control satellites. In addition, the Shuttle is being designed with careful attention to the special requirements of the military services."

He said, too, that "In another mode, the Orbiter has utility as a repair/retrieval vehicle for satellites already in orbit which have malfunctioned." The satellite that's gone awry might be captured and repaired either in space or, if necessary, on the ground. Either way, it would be less expensive than sending up a new satellite.

Another use, he said, " . . . is the employment of the space tug, essentially a propulsion stage which can be used to jockey a satellite from one orbit to another. An example of the need for this service is the synchronous-orbit satellite, one whose path in space is synchronized with earth's orbit so that the satellite remains in a fixed position relative to earth." In all likelihood, the first tugs will be unmanned, says Teague, but as space operations expand there will probably be manned versions.

### Shirtsleeve environment

"For manned laboratory-type missions," Teague said, "a special pressurized 'sortie module' can be fitted into the payload bay." At that stage of development, " . . . scientists and engineers can work in shirtsleeve environment for as long as 30 days. The module can accommodate up to 12 persons along with their experiments and other equipment. Since they play no part in the operation of the Orbiter and since the Shuttle is being designed for low acceleration forces during launch and re-entry, the passengers need not be trained astronauts. For the first time. investigators will be able to accompany their experiments into space and contribute to the greater research efficiency that man-monitorship enables."

In addition, as Teague points out, "Finally, ever since man first ventured into space in 1961, there has been a never-filled need for a space rescue vehicle. A major reason has been the time required to mount and check out a manned spacecraft. With a fleet of five Orbiters, which is what NASA contemplates for the inventory of the 1980s, and the inherent quick reaction of the Shuttle, the system can be adapted to fill this long-standing requirement."

### Many advantages

Viewed from the economic side, the Space Shuttle possesses many advantages—the most obvious one being that it will be reusable rather than a one-shot Apollo-type vehicle. "With the Shuttle," comments Teague, "we can keep man in space without reverting to the heavy expenditures of earlier years. NASA has stated positively that the Shuttle system can be developed within a budget plan approximating that of the current year, which represents one of the lowest levels of the past decade. Development costs, spread over six fiscal years, amount to about $5.15 billion for two test spacecraft and their boosters."

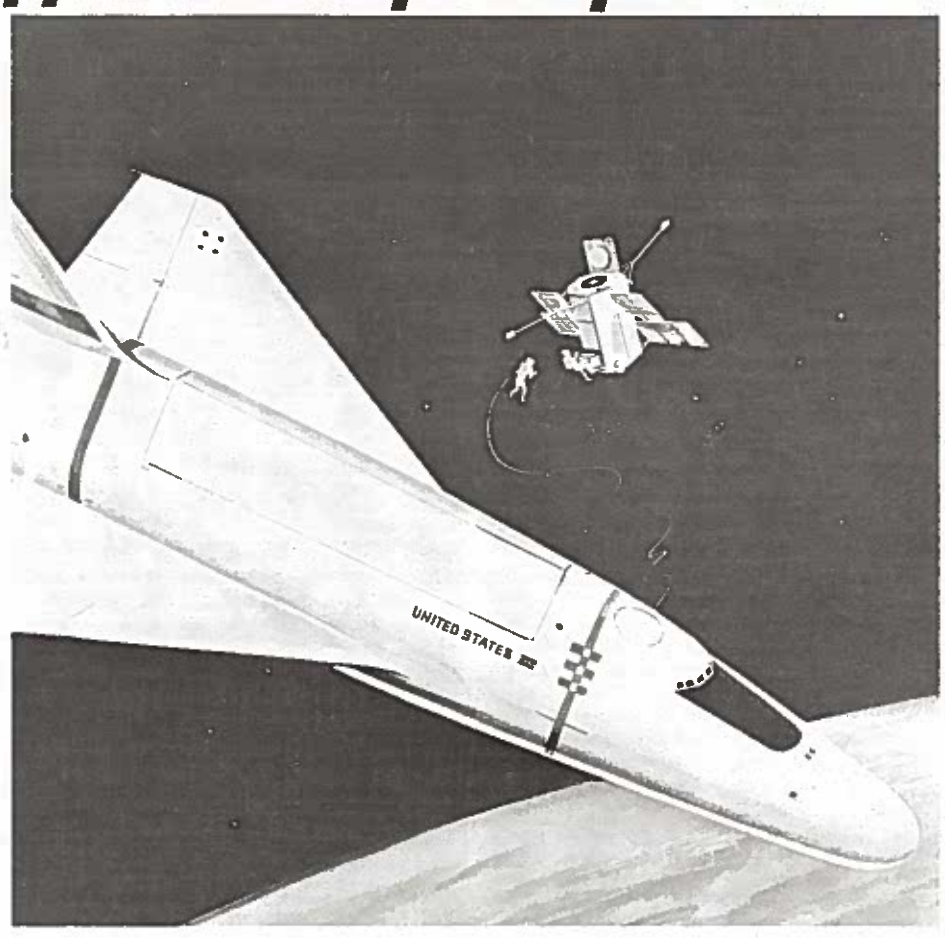
There are other economies, too. For example, Teague says, "NASA estimates that 80 percent of the savings promised in delivery and operation of unmanned spacecraft will stem from the Shuttle's influence on satellite design and reuse." There should also be greater freedom of design, an extension of a satellite's operating lifetime (because of the retrieval and repair capability), use of the Orbiter as a test bed for instrument development (such as a large space telescope), and " . . . the important consideration of the costs of failures, which continue to occur despite the most elaborate precautions to prevent them." On that last item, he observed that only one of three OAOs (Orbiting Astronomical Observatories) succeeded, but if a Shuttle had been operable, the two failures could have been brought back to earth, repaired, and restationed. He went on to point out:

"A NASA study of 131 space failures shows that 78 of them were related to the launch phase and therefore could not have occurred if the Shuttle had been operational. In the remaining cases . . . the payloads could have been saved by in-orbit repair or retrieval. Thus, the Shuttle promises virtual elimination of total failure."

And finally, Representative Teague commented:

"The economic features of the program are important, particularly to a legislator, but I do not suggest that cost reduction is the sole, or even primary, justification for developing this system. The fundamental reason for carrying out the program is to make available a means for routine access to space, to remove the constraints imposed by an earlier level of technology, to progress from space adolescence to full maturity.

"The Shuttle can be the instrument for maintaining American pre-eminence in space and for realizing the broad range of benefits that advancing technology promises — those that are already visible and those that we cannot yet envision."




**Spacework.** **Once the Space Shuttle becomes operational there will be the ability to repair vehicles and satellites in space, as pictured in this artist's rendering of astronauts leaving the Orbiter to work on the Orbiting Astronomical Observatory.**

## Holiday plans?

There are some holidays neatly tucked into May and July weekends. You may want to start planning.

Bill Zarkowsky, President of Grumman Aerospace, has issued this announcement:

"All plants will be closed on Memorial Day, Monday, May 29, 1972, and all personnel actively employed will be paid for that day.

"All plants will be closed on Independence Day, Tuesday, July 4, 1972.

"The 'floating' holiday for 1972 will be observed on Monday, July 3, 1972, the day before Independence Day.

"Accordingly, all plants will be closed on Monday, July 3, and Tuesday, July 4, and all personnel actively employed will be paid for these days."

## Students, NASA meet on Skylab projects

Twenty-five national winners in the Skylab Student Project competition were scheduled to meet with NASA officials May 8-12 at the Marshall Space Flight Center at Huntsville, Ala., to discuss the design and demonstration of their space experiments.

The students will work with NASA scientists and engineers in a series of preliminary design reviews, of the same type that NASA conducts for flight experiments devised by professional scientists.

Space experiments or demonstrations proposed by these high school students are being considered for flight aboard the Skylab manned space laboratory scheduled for launching in April 1973.

## List prize selections for bond drawing

*(Continued from page 4)*

Pa., or Playboy Club, New Jersey, for two.

24. G.E. 23-inch black and white TV console or choice of three nights (weekend) at Host Farm, Pa., or Playboy Club, New Jersey, for two.
25. G.E. 23-inch black and white table-model TV with stand or choice of three nights (weekend) at Host Farm, Pa., or Playboy Club, New Jersey, for two.
26. Westinghouse automatic clothes dryer or choice of three nights (weekend) at Pocono Mountains or the Catskills for two.
27. G.E. portable dishwasher or choice of three nights (weekend) at Pocono Mountains or the Catskills for two.
28. 16-inch portable black and white TV with stand or choice of three nights (weeeknd) at Pocono Mountains or the Catskills for two.